

Snap-on Tools

**"THE
CHOICE
OF BETTER
MECHANICS"**

CATALOG "BB"

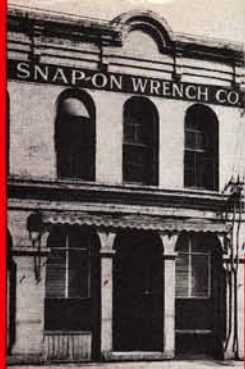
1920



1970

ANNIVERSARY

SNAP-ON TOOLS CORPORATION



1920

SNAP-ON TOOLS



ANNIVERSARY

When the first sets of SNAP-ON interchangeable socket wrenches were manufactured in 1920, professional mechanics quickly realized their unique advantages. The five handles and ten sizes of sockets not only cost less than the 50 solid type wrenches they replaced, but also allowed a mechanic to carry the complete set in the small kit bag shown above. As demands for SNAP-ON tools multiplied, a network of branch sales offices were established throughout the country. These branches maintain tool stocks and serve as headquarters for dealers in the territory.

Prior to 1930, the manufacturing operations were located in various locations in Milwaukee, Wisconsin, and the offices were in Chicago, Illinois. In 1930, Snap-On constructed a plant in Kenosha, Wisconsin that houses both office and manufacturing facilities, and today is the nucleus for an expansive national and international operation. Further facilities for manufacturing, distribution, and warehousing were later added in the United States, Canada, Mexico, Europe and the Near East to better serve the professional mechanic. Snap-on now owns six manufacturing plants and provides work for a large number of supplier factories. Today the distribution system includes 59 branch offices and warehouses in the U.S., Canada, Mexico, Switzerland, England and Lebanon.

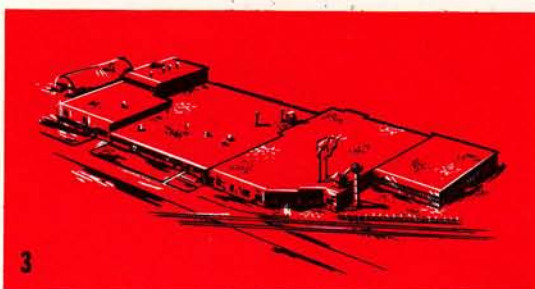
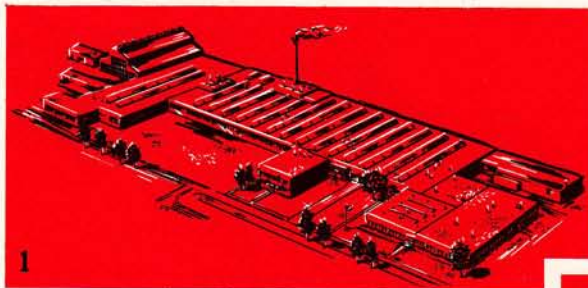
From these branches, over 1,200 franchised dealers operate. Carrying his tools in a walk-in type truck, the "Snap-on man" is able to render a regular, dependable service to all automotive service shops and other tool users in his territory. Over 130 industrial salesmen service large industrial accounts, railroads, government, etc. while the International Department serves leading tool distributors throughout many foreign countries.

Today Snap-on provides a complete line of quality mechanics hand tools, electronic automotive testing equipment, as well as a wide range of industrial type wrenches and other tools for production and maintenance. The Snap-on line also encompasses torque measuring devices, tool cabinets, and a variety of special tools.

SNAP-ON has enjoyed a close working relationship with professional tool users during the past 50 years of direct-to-customer distribution and has amassed a broad knowledge of tool requirements throughout the industry. This knowledge combined with a strict adherence to high quality standards and the ability to render dependable, personalized service has made SNAP-ON products known and preferred by professional tool users throughout the world.

1970: MODERN FACILITIES GEARED TO GROWTH

1. SNAP-ON TOOLS CORPORATION
KENOSHA, WISCONSIN
Factory and General Offices
2. WEIDENHOFF CORPORATION
ALGONA, IOWA
Factory and Offices
3. SNAP-ON TOOLS CORPORATION
MT. CARMEL, ILLINOIS
Factory and Offices
4. SNAP-ON TOOLS OF CANADA, LTD.
TORONTO, ONTARIO
Factory and General Offices
5. SNAP-ON TOOLS CORPORATION
OTTAWA, ILLINOIS
Central Warehouse and Shipping
6. KELSEY WELDING SUPPLY CORP.
KENOSHA, WISCONSIN
Factory and Offices
7. JUDSON ENGINEERING DIVISION
NATICK, MASSACHUSETTS
Factory and Offices



Snap-on Tools - Shop Equipment

ARE MANUFACTURED TO THE HIGH STANDARDS
OF QUALITY ESSENTIAL FOR PROFESSIONAL USE

**When you buy
SNAP-ON tools
you are protected
against defects due
to faulty materials
or workmanship**

SNAP-ON Hand Tool Guarantee

Any SNAP-ON hand tool or part which fails because of defective workmanship or material will be repaired or replaced when returned to a SNAP-ON representative or branch warehouse.

SNAP-ON Equipment Guarantee

SNAP-ON equipment items which fail because of defective material or workmanship will be repaired or replaced when returned to any authorized representative or SNAP-ON branch warehouse when the unit is within warranty period.

Because of the wide variety of items involved a guarantee card showing the warranty period is supplied with each piece of equipment.

SUBSIDIARY AND FOREIGN SALES OFFICES

SNAP-ON TOOLS OF CANADA, LTD.

Factory and General Offices	Area Code	Telephone No.
8271 Keele St., Vaughan Township, Ont.,	416	889-7501
P.O. Box 700 Downsview, Ont.,	416	243-4960
ALBERTA, Calgary, 3625 Blackburn Rd., S.E.,	403	738-3171
BR. COLUMBIA, Vancouver 9, 1780 W. 3rd Ave.,	604	888-7937
MANITOBA 21, Winnipeg, 490 Berry St.,	204	382-4159
N. BRUNSWICK, Moncton, 77 Victoria Ave.,	506	549-3549
ONTARIO, Hamilton, 37 Morley St.,	519	451-1540
London, 465 Nightingale Ave.,	705	472-0970
North Bay, 1335 Depencier Rd.,	416	733-7170
Toronto 18, 10 Bermondsey Rd.,	416	681-7734
QUEBEC, Montreal 26, 274 Bates Rd.,	514	
Quebec City 10, 2155 Boul. Charest Ouest.	418	

HERRAMIENTAS SNAP-ON DE MEXICO, S.A.

Mexico 4, D.F., Insurgentes Norte Numero 496	47-87-07
Frente Unidad Nonoalco Tlatelolco	

HERRAMIENTAS LATINO-AMERICANA, S.A. DE C.V.

Mexico 14, D.F., Poniente 140 Numero 526A	37-17-21
Industrial Vallejo	

SNAP-ON AG

SWITZERLAND, Zug—Cable: "SNAPONAG"	042-42242
Geschäftshaus Zentrum, Zeughausgasse 9	

SNAP-ON TOOLS

LEBANON, Cable: "SNAPONBEY"	
Fallaha and Samman Bldg., Apt. 4, P.O. Box 7327	
Michel-Ange St., Raouche, Beirut	244-205
ENGLAND, Kettering, Northants, Cable: "SNAPONUK"	
Site 9, Trafalgar Rd.,	Kettering-2674
HONG KONG B.C.C., Hong Kong, Cable: "SNAPONHON"	
Bellevue Court, 41 Stubbs Road, Apt. A-8	731148

BRANCH SALES OFFICES PROVIDE

Snap-on TOOL SERVICE THROUGHOUT INDUSTRY

	Area Code	Telephone No.
ARIZONA 85017, Phoenix, 3006 N. 30th Ave.,	602	272-2615
CALIFORNIA 90017, Los Angeles, 1717 W. Sixth St.,	213	388-3445
94608, Oakland Area, P.O. Box 8573		
Emeryville, 6390 Christie Ave.,	415	654-8866
92806, Anaheim, 1521 N. Placentia Ave., P.O. Box 6257	714	635-4550
COLORADO 80219, Denver, 2590 West 2nd Ave.	303	936-2363
CONNECTICUT 06109, Hartford Area,		
Wethersfield, 980 Silas Deane Highway, P.O. Box 150	203	529-7481
FLORIDA 32206, Jacksonville,		
1601 Walnut St., P.O. Box 3863	904	354-4469
33148, Miami, 7025 N.W. 41st St., P.O. Box 626	305	887-7336
GEORGIA 30324, Atlanta, 2075 Liddell Drive, N.E.,		
P.O. Box 13635, Station K	404	875-9882
HAWAII 96819, Honolulu, 2111 Eulene St.,		817-308
ILLINOIS 60525, Chicago Area, La Grange, 500 E. Plainfield Rd.	312	352-3741
60525, La Grange, 5221 S. Dansher Rd., P.O. Box 388 (Industrial Accounts)	312	352-1060
INDIANA 46218, Indianapolis, 2811 N. Webster Ave.	317	253-6418
LOUISIANA 70002, New Orleans Area,		
Metairie, 3711 Hessmer Ave., P.O. Box 7155	504	888-4300
MARYLAND 21205, Baltimore, 4503 E. Monument St.,	301	342-4466
MASSACHUSETTS 01752, Boston Area,		
Marlboro, Bilancieri Ind., Park, Northboro Road, Rt. 20, P.O. Box Q	617	481-1700
MICHIGAN 48024, Detroit Area,		
Farmington, 20750 Chesley Drive, P.O. Box 463	313	476-7300
MINNESOTA 55418, Minneapolis, 4940 W. 35th St.,	612	927-7994
MISSOURI 64111, Kansas City, 3150 Terrace St.,	816	931-2322
63139, St. Louis, 2165 Hampton Ave.,	314	647-2338
NEBRASKA 68107, Omaha, 3716 "D" St.,	402	731-8330
NEW JERSEY 07006, Newark Area,		
Fairfield, 1275 Bloomfield Ave., P.O. Box 927	201	228-1666
NEW YORK 12205, Albany, 118 Everett Road	518	438-4058
14217, Buffalo, 3147 Delaware Ave.	716	873-2995
11040, New York City Area,		
Garden City Park, 116 County Courthouse Rd.,	516	741-8833
13206, Syracuse, 1622 Burnet Ave.,	315	479-6629
N. CAROLINA 28210, Charlotte, 3621 Tryclan Ave.,		
P.O. Box 15218	704	525-0080
OHIO 45215, Cincinnati, 666 Redna Terrace	513	771-8114
44118, Cleveland, 2066 S. Taylor Road	216	371-3457
43608, Toledo, 1326 Expressway Drive, N.,	419	729-3771
OKLAHOMA 73105, Oklahoma City, 100 N.E. 50th St.,	405	528-2825
PENNSYLVANIA 17043, Harrisburg Area,		
Lemoyne, 549 Bosler Ave., P.O. Box 43	717	238-5219
19130, Philadelphia, 1710 Fairmount Ave.,	215	765-7400
15221, Pittsburgh, 630 Ardmore Blvd.,	412	242-5551
PUERTO RICO 00924, Rio Piedras		
San Marcos Ave. at Enrique Vasquez St., P.O. Box SS	809	769-0480
TENNESSEE 38116, Memphis, 3106 Norbrook Drive, P.O. Box 16569	901	398-5703
TEXAS 75247, Dallas, 9101 Diplomacy Row	214	631-4700
77008, Houston, 7220 Wynnwood Lane	713	666-3611
UTAH 84115, Salt Lake City, 105 West 2950 South,		
P.O. Box 15503	801	487-0607
VIRGINIA 23229, Richmond, 2500 Waco Ave.,	703	288-5749
WASHINGTON 98188, Seattle, 406 Baker Blvd., Andove Ind. Park	206	248-3200
WISCONSIN 53151, Milwaukee Area		
New Berlin, 2115 S. 162nd St., P.O. Box 46	414	786-7055
INDUSTRIAL & RAILROAD DEPARTMENT:		
8028—28th Ave., Kenosha, Wis., 53140, U.S.A.	414	654-8681
INTERNATIONAL DIVISION OFFICES:		
8028—28th Ave., Kenosha, Wis., 53140, U.S.A.	414	654-8681
Cable Address: "SNAPON" All Codes		
SNAP-ON INTER-AMERICAS, LTD.,		
8028-28th Ave., Kenosha, Wis. 53140, U.S.A.	414	654-8681
Cable Address: "SNAPONAL" All Codes		

CATALOGUE "BB"

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SNAP-ON TOOLS CORPORATION, Kenosha, Wis.

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Snap-on Tools

**DISTRIBUTED TO CUSTOMERS THROUGH
BRANCHES AND DEALERS EVERYWHERE**



The SNAP-ON dealer who calls regularly at your shop with the latest in tools and equipment can help you select the shop equipment or tools you need and let you try them out right on the job. SNAP-ON dealers all over the country, working closely with service managers and mechanics, understand service problems and keep on the alert for ideas that will improve tool efficiency. This is one of the reasons why SNAP-ON has long been a leader in the field with new time-saving tools for specific jobs. Further, SNAP-ON dealers hear about new uses for tools you may already own and are glad to pass these tips along to you.

Snap-on dealers demonstrate under working conditions. Thus, the tool itself can prove its superior design features and top-quality construction. You can see firsthand why SNAP-ON tools pay big dividends in speed, safety and improved work—why SNAP-ON tools are the choice of better mechanics.

Instruction in *Snap-on* Equipment Operation

When you invest in SNAP-ON Shop Equipment such as the Anal-O-Scope, Distrib-U-Scope, Wheel Aligning and Balancing Equipment, Engine Test Meters, etc., you can be sure that complete instruction in its operation is available to you. We want your investment to help you render the best possible service to your customers and make more profits for you. Your SNAP-ON dealer has received the training necessary to provide this service himself or can arrange for your instruction by a SNAP-ON Equipment Specialist. This service is available to you whenever you need additional help.

Increase Your Earning Power NOW ... With Profit Building Tools and Equipment ... *Snap-on* Time Payments Make it Easy

Why handicap your earning power with inadequate tools when you can equip yourself with all the tools and shop equipment you need through the SNAP-ON Time Payment plan? Have it working for you while it is paying for itself. Whether you are a mechanic who needs a complete set of tools, roll-cab, etc., or the operator of a repair shop or service station in need of shop equipment, you'll find it profitable to equip yourself NOW. The biggest corporations do business on credit ... it's the smart way for you, too. Your SNAP-ON dealer or the nearest SNAP-ON branch office will be glad to arrange a Time Payment Contract for you.

TO MANAGERS



TO MECHANICS



TO SERVICE STATIONS



FOLLOW THESE SAFETY RULES

We cannot accept responsibility for the results of using tools which have been abused or badly worn, tools such as chisels and punches which have become "mushroomed" by hammer blows; the incorrect or improper use of tools, or the use of tools repaired by others.

Use only Industrial Power and Impact type sockets on electric or pneumatic impact wrenches or nut runners.

Always make sure that electrical equipment and tools are grounded.

Always use the right size and type of such tools as punches, chisels, screwdrivers, hammers, wrenches, etc.

Keep cutting edges properly sharpened and

mushroomed punch or chisel handles ground down. A rounded or chipped screwdriver tip is a dangerous tool—file the tip to original shape.

Don't use a screw driver for any other purpose than turning screws.

Keep screwdrivers, pliers, and other tools clear of electrical hazards.

Wrench handle lengths are designed to keep leverage and wrench strength compatible—increasing leverage by any method is dangerous.

When using any tool, protect your eyes with safety glasses or goggles. Be especially careful when grinding, polishing, punching, chiseling, etc.

"*SNAP-ON" IS THE REGISTERED TRADEMARK OF SNAP-ON TOOLS CORPORATION

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PREVENT THIS



WITH

Snap-on

FLANK DRIVE WRENCHES



U.S. PAT. NO. 3,273,430 BRITISH PAT. NO. 1,138,546

BEST WRENCH IDEA

since **Snap-on**

pioneered the interchangeable socket

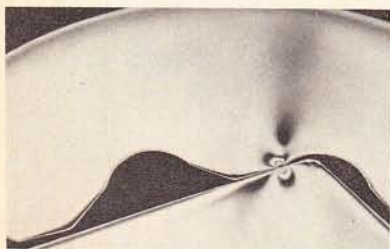
The new SNAP-ON *Flank Drive* single and double hex wrench broaching is the greatest idea in wrenches since the versatile detachable socket.

Now, there's savings in time on repair jobs; adequate protection for fastener heads; appreciable extension of tool serviceability.

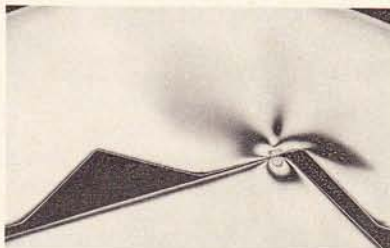
This new development results in wrenches that are 5 to 10% stronger than comparable ordinary wrenches . . . provide a 15 to 20% increase in application pressure without damage to fasteners. The wrench contacts the nut at the side or flank rather than at the corner, thereby assuring a firm, slip-resisting grip. This revolutionary new design actually prolongs the life of the socket . . . prevents rounding of corners of nuts and bolts.

The SNAP-ON *Flank Drive* Wrench proves best on a wide variety of applications — in service stations, repair garages, automotive assembly plants, refrigeration equipment construction, jet aircraft engine and aerospace equipment manufacture, general industrial operations. Special high performance sockets are available for use on high tension 12-point fasteners . . . see SNAP-ON industrial catalogue for listings.

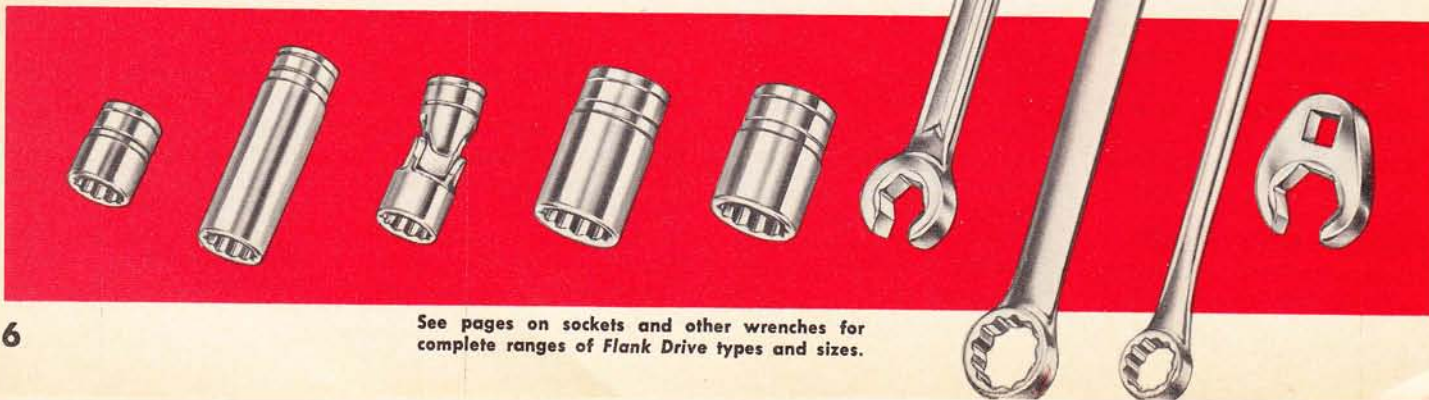
The *Flank Drive* design is now incorporated into SNAP-ON single and double hexagon sockets, boxsockets, combination, flare nut and many special use wrenches $1\frac{1}{16}$ " and smaller. These tools are excellent for those jobs requiring unusually high torque or tightening, as well as for the regular day-in, day-out nut turning jobs.



Snap-on *Flank Drive* Socket contacts nut or bolt away from the corner for better turning, wider stress distribution.



Ordinary Hex Socket contacts corner of nut or bolt resulting in greater stress on fastener and socket.



See pages on sockets and other wrenches for complete ranges of *Flank Drive* types and sizes.

**KR-530
TOOL CHEST
AND
KR-558
ROLL-CAB**



BUY this modern *Snap-on* DELUXE TOOL CHEST AND ROLL-CAB COMBINATION

Be a top flight mechanic *all* the way! Protect your valuable tools with a handsome, husky SNAP-ON Deluxe Chest and Roll-Cab Combination. This outfit gives you plenty of room for orderly storage of large and small tools . . . and man what construction! Heavy gauge steel throughout . . . extra reinforced channels and husky drawer-slides for smooth, non-sag, non-spill drawer action . . . close spot welded construction . . . full length cover hinges, strong tumbler locks . . . modern red baked-on enamel finish with stainless steel trim. So go first class now! Remember, SNAP-ON quality costs less in the long run.

KR-530 DELUXE TOOL CHEST

Three drawers and open top compartment provide plenty of space for your smaller and most used tools . . . compartments segregate tools for working convenience. A device inside the top compartment locks all three drawers and the compartment cover is secured by a tumbler lock. The top compartment is divided into three sections, one of which is sized to accept our KTA-3 Tote Tray. Tray is not included with the chest. Full length channel supports under the chest strengthen and add rigidity to it and protect the bottom from wear. Size specifications are as follows.

Chest Specifications

Overall Dimensions: 26½" long, 18" wide, 14" high.

Top Compartment: 3½" deep, divided into 3 sections, 24½" x 8", 20½" x 8¾" and 8¾" x 4".

Drawers: Top drawer has two short partitions, middle and bottom drawer one lengthwise partition.

Top Drawer: 23½" x 16½" x 1⅞".

Middle Drawer: 23½" x 16½" x 1⅞".

Bottom Drawer: 23½" x 16½" x 3⅞".

Weight: Net 66 lbs., Shipping 75 lbs.

KR-558 DELUXE ROLL-CAB

You'll be the envy of other mechanics when you own this new two tone deluxe tool cab. Just look at the storage room you have in this large unit . . . there are seven full length drawers and the different depths provide for separation and convenient location of a wide range of tools. Each drawer has a dividing partition which also serves to add strength and rigidity to the drawer. One tumbler lock secures all seven drawers. The cab rolls easily on 4" diameter wheels, two of them are fixed, two swivel and have foot brakes. Sturdy handle has rubber end covers. Specifications follow.

Roll-Cab Specifications

Overall Dimensions: 26½" long, 18" wide, 32¼" high, and 36½" including the wheels.

Drawers: Top drawer has two short partitions, all other drawers have one lengthways partition.

Top Drawer: 23½" x 16½" x 1⅞".

2nd and 3rd Drawers: 23½" x 16½" x 1⅞".

4th, 5th and 6th Drawers: 23½" x 16½" x 3⅞".

Bottom Drawer: 23½" x 16½" x 6⅞".

Weight: Net 137 lbs., Shipping 150 lbs.



**KR-570
CHEST AND CAB COMBINATION**

Give yourself the red carpet treatment and enjoy the pride of ownership you get with this modern tool storage outfit.

Height from floor is 50½ inches.

Weight: Net 203 lbs., Shipping 225 lbs.



A



Snap-on

MATCHED UNITS

CHEST—DRAWER SECTION—ROLL-CAB

Snap-on TOOL CHEST—PREFERRED BY MANY MECHANICS

A handsome combination of SNAP-ON Tool Chest, Drawer Section and Roll-Cab parked in your stall marks you as a mechanic who takes pride in his work; even more important, that they contribute maximum working efficiency to your knowledge and mechanical ability. This SNAP-ON Tool Chest is the popular choice of thousands of mechanics. The open top compartment has partitioned sections, one of which will hold a KTA-3 Tote Tray. This tray is not furnished with the tool chest.

This Tool Chest is exceptionally well made and embodies all of the best SNAP-ON construction features. Full length piano-type hinges attach the cover and the swinging front panel, and the cover is given added strength and rigidity through reinforcing channels welded underneath. The front panel has a tumbler-type lock and swings down and locks in front of the drawers to provide protection for all the contents.

All drawers have full-length roll-type pulls, they are fitted with easy sliding side channels and cannot pull out completely and spill the contents, yet are easily removed if necessary. Close spot welding of the heavy gauge steel adds ruggedness and durability, edges are double-rolled wherever practical to add strength and rigidity. This chest has sturdy trunk-type handles.

MATCHING DRAWER SECTION

This three-drawer section is an excellent way to add additional storage area to your tool chest. Not only can you use one section in combination with the KRA-352B Roll-Cab and the Tool Chests shown above, or the KRA-56A, but the sections are designed for stacking one on top of another . . . three, four or more, according to your tool or parts storage requirements . . . metal corners protrude to prevent units from moving. This unit has strong, trunk-type handles and has baked-on red enamel finish. Drawers have full length pulls and non-spill slide-arms. A tumbler lock on one drawer locks all drawers.

B KRA-429 Drawer Section. One deep and two shallow drawers.

Specifications of Drawer Section

Overall Dimensions: 26" long, 14 3/4" wide, 8 1/8" high.

Shallow Drawers: 24 5/8" x 13 1/2" x 1 1/2" deep.

Deep Drawers: 24 5/8" x 13 1/2" x 3 3/8" deep.

Approximate Weight: Net 42 lbs., Shipping 48 lbs.

There's a lot of drawer space in this big chest and when you combine one with a Drawer Section and the KRA-352B Roll-Cab you have a tool storage outfit second to none. Each unit is designed to fit perfectly with the others.

A KRA-58B Tool Chest. Finished in baked-on red enamel.

KGA-58B Tool Chest. Finished in baked-on grey enamel.

Specifications of Above Chests

Overall Dimensions: 26" long, 12" wide, 14" high.

Top Drawers (3 included) 7 1/2" x 10 1/2" x 1 1/4" deep.

Top Drawers (2 included) 7 1/2" x 10 1/2" x 1 1/4" deep.

Top Drawers (2 included) 7 1/2" x 10 1/2" x 2" deep.

Bottom Drawer (1 included) 24" x 10 1/2" x 1 1/4" deep.

Bottom Drawer (1 included) 24" x 10 1/2" x 2 1/4" deep.

Weight: Net 67 lbs., Shipping 71 lbs.

COMPANION ROLL-CAB

C KRA-352B "Roll-Cab", Red Enamel Finish. A companion unit for SNAP-ON Tool Chests above and on other pages. The roomy drawers are automatically locked when the lower compartment panel is closed and locked. When open the panel slides in under the drawers. Three reinforced drawers have wide, heavy duty, no-spill slide runs and slanted fronts with full length drawer pulls. Extra heavy gauge steel and welded construction give you a rugged cab that will assure long, dependable service. Easy glide 4" casters (2 swivel, 2 fixed) allow cab to be rolled to the job with ease.

Specifications of Roll-Cab

Overall Dimensions: 26 5/8" x 19 1/8" x 26 1/2" deep (31 1/4" to floor).

Drawers: All are 21 5/8" x 17 5/8" x 3 7/8" high.

Compartment: 26 1/2" x 19" x 12" high.

Shipping Weight: 131 lbs., net 108 lbs.

KGA-352B Roll-Cab. Same as above, but with grey enamel finish.

KRA-362B Combination. Two units, the KRA-58B Chest and the KRA-352B Roll-Cab. Red enamel finish.

Snap-on

MATCHED UNIT COMBINATIONS TO MEET YOUR STORAGE NEEDS



A



B



C



D



E

A KRA-362B Combination consists of two units the KRA-58B Chest and the KRA-352B Roll Cab in red enamel.

KGA-362B Combination above units in grey enamel finish.

B KRA-360C Combination made up of the KRA-352B Roll Cab, KRA-429, 3 Drawer section and the KRA-58B Chest. This excellent storage outfit gives you a drawer arrangement to take the largest tool kit.

C KRA-357B Combination with plenty of space to take care of most needs. Has KRA-56A Chest stacked on top of KRA-352B Roll Cab. The portability of the combination makes it handy for shop use.

D KRA-370B Combination provides plenty of storage space for a wide range of tools. The KRA-352B Roll-Cab gives you the portability you need and the big KRA-59A Tool Chest has an excellent drawer layout.

E KRA-359B Combination consists of KRA-352B Roll Cab, the KRA-429 three-drawer section and KRA-56A Tool Chest. This unit allows you to arrange space as you need it for working convenience.



Snap-on WELDED STEEL COASTER-CABS

ROLL RIGHT TO THE JOB—NO LOST TIME—NO HUNTING FOR TOOLS

A KRA-378A Coaster-Cab. Modernize your maintenance shop and speed repair work with roller cab convenience. Here is storage room for all your tools from Midget tools to large drills, gear pullers, and other equipment . . . built into a rolling work bench. It is built of heavy gauge steel and electrically welded for greatest strength.

One tumbler-type lock secures the entire contents. The heavy gauge, metal top provides plenty of working space. 4" diameter casters (2 swivel, 2 fixed) roll your "Coaster-Cab" easily and quietly to the job. Red enamel finish.

Seven Sturdy, Roomy Drawers

Each drawer has "Non-spill" slide runs, and the two bottom drawers have extra wide, heavy duty runners placed low on the drawer sides. Even when heavily loaded these drawers will slide easily and without sagging, binding, or tipping.

Specifications for KRA-378A

Overall Dimensions: 26 $\frac{1}{8}$ " long, 19 $\frac{1}{8}$ " wide, 37" high.

Three Top Drawers: 21 $\frac{1}{2}$ " long, 18 $\frac{1}{2}$ " wide, 1 $\frac{3}{4}$ " high.

4th and 5th Drawers: 21 $\frac{1}{2}$ " long, 18 $\frac{1}{2}$ " wide, 3 $\frac{7}{8}$ " high.

Two Bottom Drawers: 21 $\frac{1}{2}$ " long, 18 $\frac{1}{2}$ " wide, 6" high.

Weight: Net 155 lbs., Shipping 166 lbs.

KGA-378A Coaster-Cab. Same specifications as the KRA-378A above, but with grey enamel finish.

B KRA-377B Coaster-Cab. Similar to the KRA-378A except in place of the two deep bottom drawers there is a compartment which is 22 $\frac{1}{2}$ " wide, 19" deep and 12 $\frac{1}{2}$ " high.

A "drop-in" front panel encloses the lower compartment and slides into a rack under the lower drawer. One tumbler-type lock secures the entire contents.

KGA-377B Coaster Cab. Grey enamel finish.

OPTIONAL DRAWER SETS for KRA-377B

If you desire the convenience of additional drawer space you can easily convert the open compartment with the addition of these optional sets of drawers. No drilling—no bolting—simply slip the drawer runners into the channels factory-welded into the sidewalls of the cabinet. Note: These sets of drawers will only fit the KRA-377B model Coaster-Cab shown above. Each drawer has full length pull and "non-spill" runners, the four largest drawers have extra wide heavy duty runners to handle heavy loads easily.

Three-Drawer Set

C KRA-433 Three-Drawer Set. (Shown in KRA-377B Cab.) Red enamel finish.

KGA-433 Three-drawer Set. Grey enamel finish.

Top Drawer: 21 $\frac{1}{2}$ " long x 17" x 1 $\frac{7}{8}$ ".

Two Lower Drawers: 21 $\frac{1}{2}$ " x 17" x 3 $\frac{7}{8}$ ".

Weight: Net 55 lbs., Shipping 59 lbs.

Two-Drawer Set

D KRA-432 Two-drawer Set. Shown in KRA-377B Cab. Red enamel finish.

Top Drawer: 21 $\frac{1}{2}$ " long x 17" wide x 2 $\frac{7}{8}$ ".

Bottom Drawer: 21 $\frac{1}{2}$ " long x 17" wide x 6 $\frac{7}{8}$ ".

Weight: Net 21 lbs., Shipping 25 lbs.



Snap-on

Our Heaviest Gauge Steel Chest . . . Built For Hard Service In The Plant Or Out In The Field

HEAVY DUTY TOOL CHEST WITH REINFORCED STEEL RUNNER SKID BOTTOM

KRA-57A Heavy Duty Chest. Extra strong and rigid for hard, rugged use and to withstand stresses and strains that come from being bounced around in trucks, as is common in road service, oil, telephone, construction, and other fields. It is made of heavier gauge steel than our other models and has more internal bracing and supports, plus closer spot welds. Welded skids add support to the bottom and make it easy to slide around. Skids have tapered ends so that they ride over rough spots and obstructions. They are slightly shorter than the box so that it can be placed on top of a KRA-352B Roll Cab if desired.

Drawers have full length pulls and have "non-spill" slide runners—they glide easily when loaded and will not tip, bind or pull all the way out. The front section is piano-hinged to the top and folds up out of the way. When front panel is closed one tumbler lock secures the entire contents . . . an interlocking lip holds it closed when unlocked, preventing tool loss if chest is tipped over.

Specifications

Overall Dimensions: 27 $\frac{1}{8}$ " x 13 $\frac{1}{8}$ " x 15 $\frac{1}{8}$ " high.

Top Compartment: 26 $\frac{1}{2}$ " x 12 $\frac{3}{8}$ " x 4" deep divided into three sections 26 $\frac{1}{2}$ " x 4", 8 $\frac{1}{4}$ " x 5 $\frac{3}{4}$ ", and 20 $\frac{1}{2}$ " x 8 $\frac{1}{4}$ ".

Top Drawers: 11 $\frac{1}{4}$ " x 7 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ " deep, felt lined.

Bottom Drawers: 22 $\frac{3}{4}$ " x 11 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ ", 1 $\frac{5}{8}$ " and 3 $\frac{1}{4}$ " deep.

Weight: Net weight 78 $\frac{1}{4}$ lbs., Shipping weight 86 lbs.

KTA-3 Tote Tray. Fits top compartment. Not included with chest but may be ordered separately. 20 $\frac{1}{2}$ " x 8" x 3 $\frac{1}{4}$ " deep.



SUPERCHEST AND ROLL-CAB

HEAVY GAUGE STEEL WELDED FOR LIFETIME USE

Snap-on SUPER COMBINATION HOLDS LARGE TOOL ASSORTMENT

© KRA-361E SNAP-ON Super Combination. Made up of KRA-61B and KRA-307B. Here is truly the last word in a matching chest and roll-cab . . . so far ahead of any similar equipment that there is absolutely no comparison. It is designed to give you convenient, safe storage for everything from Midget tools to large pullers, drills, etc. It is ruggedly built from extra heavy gauge steel, welded and reinforced for strength and rigidity. Check its net weight of approximately 290 lbs. against any other similar equipment. In addition, it is also an impressive addition to any shop with its rich red baked-on enamel finish and stainless steel trim.

Snap-on SUPERCHEST

Ⓐ KRA-61B SNAP-ON Superchest. 7 Drawers segregate your hand tools for fast, convenient selection and checking. Each drawer has full length pulls with stainless steel trim and Non-Spill slide runs for easy action . . . cannot pull out or tip and spill contents. Bottom drawer has extra heavy duty slide runs. Has piano-type hinges, tumbler-type lock, trunk-type carrying handles.

Size: 31" long, 15" wide, 17" high.
Top Compartment: divided into four sections — one fits the KTA-3 Tote Tray (see page 12, not included with chest).

Drawers: 3 are 8½" x 13" x 1" high.
1 is 27½" x 13" x 1" high.
2 are 27½" x 13" x 1½" high.
1 is 27½" x 13" x 3¼" high.

Shipping weight 121 lbs., net weight 108¼ lbs.

Snap-on SUPER "ROLL-CAB"

Ⓑ KRA-307B SNAP-ON Super "Roll Cab." Just look at the storage space you get in this big Cab. The six drawers provide four different depths to accommodate small and larger tool units and each drawer has welded partitions that serve the dual purpose of tool segregation and adding rigidity to the drawers. Slide runners placed low increase rigidity and ease of operation, those on the five bottom drawers are extra wide heavy duty type. A stop prevents drawers from pulling out completely and a tumbler lock secures them. The Cab rolls easily on 5" plate-type hard composition casters (2 fixed and 2 swivel).

Overall Dimensions: 36" high (with casters), 31½" long, 20¾" wide.

Drawers: One is 26½" long, 15" wide, 1¼" deep.
2 are 26½" long, 18½" wide, 2⅞" deep.
1 is 26½" long, 18½" wide, 6" deep.
2 are 26½" long, 18½" wide, 4½" deep.

Shipping weight 211 lbs., net weight 182 lbs.

THESE IMPORTANT FEATURES CONTRIBUTE TO **Snap-on** QUALITY



Full length piano-type hinges are used on doors and lids to provide greater strength and finest appearance. They are closely spot welded in position.

A steel channel panel welded inside the lid adds rigidity and structural strength . . . also helps to prevent any warping of the lid or the hinge.

Drawer runners are attached to extra steel plates welded into the chest and cab. This construction adds to the strength and rigidity of the unit.

A folding brace at each end of the chest holds the lid in open position. Prevents lid from closing accidentally. Easily lowered by pressing brace.

Space dividers also serve as reinforcing braces. Welded to the bottom and the sides of a drawer they help prevent sagging or buckling of the drawers.

Drawers slide easily on full length slide runs. They will not sag or pull out accidentally and open easily even when heavily loaded with tools or parts.



Snap-on[®] MAKES A TOOL CHEST FOR EVERY TOOL SET

AND EVERY ONE IS A FINE EXAMPLE OF GOOD DESIGN AND QUALITY

GABLE ROOF "MECHANIKIT"

A KRA-21 A new gable roof "Mechanikit" offers features that make it a favorite of professional mechanics and provide ample space for average set of tools. Lid has full length piano-type hinge. Gable roof provides extra tool space and accommodates handle of KTA-3 Tote Tray which fits in upper compartment and is furnished at no extra cost. The bottom drawer has a sliding tray for small tools and parts. Each drawer is fitted with "non-spill" slide runs which permit drawers to open without sagging or falling out. Drawers always glide easily. Heavy gauge steel is electrically welded for rigidity and strength. When open, the piano hinged front drops down out of the way of the drawers. When closed, the front secures to top with hasp fasteners and has strong padlock hasp for locking chest. Suitcase handle at top and trunk handles at the sides make handling easy. Finished in beautiful baked-on red enamel. For all-around convenience this "Mechanikit" is tops.

Specifications

Overall Dimensions: 21" long, 8 $\frac{3}{4}$ " wide and 11 $\frac{1}{4}$ " high.
Top Drawer: 19 $\frac{3}{4}$ " x 7 $\frac{3}{4}$ " x 1 $\frac{1}{2}$ ".
Bottom Drawer: 19 $\frac{3}{4}$ " x 7 $\frac{3}{4}$ " x 3".

QUALITY "MECHANICHEST"

B KRA-53 One of our best tool chests and embodies all of the superb construction features shown at the bottom of this and the opposite page. Heavy welded construction, full length piano-type hinge. Drawers have non-spill slides. Top compartment has 3 sections, will accommodate the KTA-2 Tote-Tray (on next page). Note: Tray is not included with Chest. Front cover has tumbler lock. Panel swings out of way when lid is lifted. Lid has two folding brackets to hold it open. Big trunk-type side handles give portability. Here's the perfect Chest to store and protect your valuable tools. The red enamel baked-on finish makes it a good looking chest on any work bench.

Specifications

Overall Dimensions: 24 $\frac{1}{8}$ " long, 10 $\frac{1}{2}$ " wide and 11 $\frac{3}{4}$ " high.
Top Compartment: 13 $\frac{1}{4}$ " deep, divided into 3 sections 23 $\frac{1}{8}$ " x 2 $\frac{1}{4}$ ", 19 $\frac{1}{2}$ " x 7 $\frac{3}{8}$ " and 7 $\frac{3}{8}$ " x 4 $\frac{1}{4}$ ".
Top Drawer: 21 $\frac{3}{4}$ " x 8 $\frac{7}{8}$ " x 1 $\frac{3}{8}$ " divided into 4 sections.
Middle Drawer: 21 $\frac{3}{4}$ " x 8 $\frac{7}{8}$ " x 2" divided into 2 sections.
Bottom Drawer: 21 $\frac{3}{4}$ " x 8 $\frac{7}{8}$ " x 3 $\frac{3}{8}$ " no divisions.
Net weight 39 $\frac{1}{2}$ lbs. Shipping weight 45 lbs.

MIDGET TOOL CHEST

C KRA-65B Midget Tool Chest. Top section moves back on slide channels. Compartments segregate the contents, larger tools fit into bottom sections. Overall size: 11 $\frac{3}{4}$ " long, 7 $\frac{3}{8}$ " wide and 3 $\frac{1}{2}$ " high. Made of heavy gauge steel, spot welded throughout. Two sturdy hinges and tumbler lock secure the contents. Metal handle makes chest convenient to carry. The Midget Chest is finished in baked-on red enamel.

ELECTRONICS TOOL KIT

D KRA-149 is primarily designed to hold electronic assembly tools. The chest is made of heavy gauge steel spot welded throughout. A piano-type hinge, two hasps, and tumbler type lock secure the contents. A metal handle makes the chest convenient to carry.

The top compartment and removable tray are divided into sections to segregate contents. A sliding drawer is located in the lower section of the chest and is divided into two sections for larger tools.

Overall size: 11 $\frac{7}{8}$ " long, 7 $\frac{1}{16}$ " wide and 6 $\frac{1}{8}$ " high.

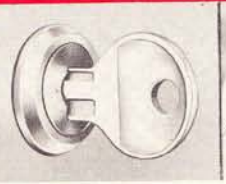
YOU GET A MORE RUGGED CHEST AND BETTER TOOL PROTECTION



Note how close the spot welds are on a SNAP-ON chest or cab . . . only 2 $\frac{1}{2}$ " to 3" apart. Extra welds mean extra dollars worth of wear for you.



Wherever it is practical to add strength or rigidity, edges are double rolled. This more costly type of construction adds years of satisfactory use.



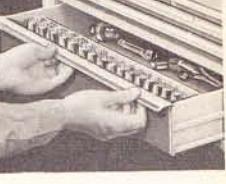
Most larger SNAP-ON cabinets and tool chests have cylinder locks to provide tool protection. On Combinations locks can be ordered keyed alike.



Sensible trunk type carrying handles. Strong enough to lift the heaviest chest load . . . big enough to hold without pinching or cutting fingers.



All chests, Roll cabinets, benches and trays are made of heavy gauge steel to provide strong, rigid construction and long life. Tools deserve protection.



Most drawers are full length to accommodate your longer, larger tools — other drawers are divided to allow you to segregate various tools.

MAXIMUM STORAGE with **Snap-on** TOOL CHESTS



KRA-59A LARGE TOOL STORAGE CHEST

(A) KRA-59A Tool Chest. Fits on top of the KRA-352B Roll-Cab but provides 50 percent more space than KRA-56A. The KTA-3 Tote Tray (not included with chest) will fit into one of the top compartment sections. Bottom drawer has no dividers, other long drawers have partitions. Drawer pulls have stainless steel trim. Covers have continuous hinges, and combination cam-type lock and bar locks secure the chest at five points — only one key is needed. Skid rails under the chest permit sliding it over rough surfaces without damage. The six small drawers have cork lined bottoms.

Overall Dimensions: 26" long, 14 $\frac{3}{4}$ " wide, 17 $\frac{3}{8}$ " high.

Top Compartment: 3 $\frac{1}{2}$ " deep — divided into 3 sections, 25 $\frac{5}{8}$ " x 5 $\frac{5}{8}$ ", 20 $\frac{3}{4}$ " x 8 $\frac{5}{8}$ " and 4 $\frac{7}{8}$ " x 8 $\frac{1}{4}$ ".

Drawers Top rows each 7" x 13 $\frac{1}{8}$ " x 1-15/16" high.

Second row, each 7" x 13 $\frac{1}{8}$ " x 1-15/16" high.

Large drawers, top two are each 23 $\frac{1}{8}$ " x 13 $\frac{1}{8}$ " x 1-15/16" high.

Bottom one is 23 $\frac{1}{8}$ " x 13 $\frac{1}{8}$ " x 3 $\frac{1}{4}$ " high.

Shipping weight 97 lbs., net 87 lbs.

KRA-56A BIG, SIX DRAWER TOOL CHEST

(B) KRA-56A Tool Chest. Full length piano-type hinges which connect the lid and the front panel to the chest add rigid strength and good appearance. Lid has inner reinforcing. Front panel lifts up out of the way and two folding brackets hold the lid open. Strong trunk handles make carrying easy. Top compartment will hold the KTA-3 Tote-Tray listed below (not included with chest). Skid runners attached to bottom of chest aid in transporting it when loaded. Bottom drawer has wide, extra heavy duty slide runners . . . helps prevent drawer sagging when heavily loaded.

Overall Dimensions: 26" long, 12" wide, 14" high.

Top Compartment: 3 $\frac{1}{2}$ " deep — divided into 3 sections, 20 $\frac{1}{2}$ " x 8 $\frac{1}{2}$ ", 25 $\frac{3}{4}$ " x 3 $\frac{1}{4}$ " and 8 $\frac{1}{2}$ " x 5".

Drawers: 3 are 10 $\frac{1}{2}$ " x 7 $\frac{1}{2}$ " x 1" high — 3 are 24" x 10 $\frac{1}{2}$ ", and are 1", 1 $\frac{3}{4}$ " and 3 $\frac{1}{2}$ " high respectively.

Shipping weight 70 lbs., net 63 lbs.

TOTE TRAY

(C) KTA-3 Tote Tray. Fits the chest shown above. Has socket compartment. Tray is 20 $\frac{1}{4}$ " x 8" x 3 $\frac{1}{4}$ " high. Net weight 1 lb. 4 oz.

MISCELLANEOUS SMALL METAL BOXES, ETC.



(A) KRA-155 METAL BOX

SIZE: 12" x 9" x 2 $\frac{1}{2}$ " Deep

This all purpose unit is sturdily built and has a 2" wide partitioned section for sockets or other small units. A carrying handle is located in the center of the top. The cover is held in place by hasp-type latches, and it incorporates a full length piano-type hinge. Finish is red enamel.

(B) KRA-116 METAL BOX

SIZE: 20" x 6" x 2 $\frac{1}{2}$ " Deep

An all purpose type box which can be utilized for a wide variety of tool storage applications. The box is sturdily built, and has a low partition which runs the full length of the box for sockets, etc. Two latches secure the lid and a convenient carrying handle is located in the center of the top. Box has a baked-on red enamel finish.

(C) KRA-279 METAL TOOL BOX

SIZE: 15-3/16" x 5" x 2" Deep

An excellent general purpose box that will prove very useful for a wide variety of tool and parts storage applications. This box is equipped with a low partitioned section that runs the length of the box and is 1 $\frac{3}{4}$ " wide. Cover has a full length piano-type hinge. A hasp type latch secures the contents. The box has a red enamel finish.

(D) TOTE TRAYS

Handy for transporting a selection of tools to the job. Carrying handle runs the full length of the tray. Red enamel finish.

KTA-2 Tote Tray. 19 $\frac{1}{8}$ " x 7" x 3" deep. Will fit into the top of chests such as the KRA-53.

KTA-4 Tote Tray. 19 $\frac{1}{16}$ " x 7" x 2 $\frac{3}{8}$ " deep. Will fit into the KRA-30A metal box shown on page 13.

(E) KRA-40 METAL BOX

SIZE: 9 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 2" Deep

Designed to hold small sets or to segregate miscellaneous items from larger sets and keep them clean. Made of heavy gauge steel spot welded for rigid strength. Lid has a full length piano-type hinge. Box has a baked-on red enamel finish.

HEAVY DUTY CASTER SET

(F) KRA-445 Heavy Duty Caster Set is desirable when extremely heavy loads are prevalent or when Roll Cabs are used in areas where there are rough or uneven floors, etc. They are $\frac{1}{4}$ " wider and 1" larger in diameter than our 4" diameter casters. This set can be used on the following Roll Cabs, KRA-352A, KRA-377A and KRA-300B

"MECHANIKITS"—SMALL BOXES—ACCESSORIES

PROTECT YOUR TOOLS—PROVIDE WORKING CONVENIENCE



MADE OF HEAVY GAUGE STEEL—SPOT WELDED FOR RIGIDITY AND LONG SERVICE

A KRA-25 "MECHANIKIT"

Size: 21 $\frac{1}{8}$ " x 8 $\frac{3}{4}$ " x 9" high.

Here is an exceptional value in a tool box. It gives you plenty of room to carry all the tools you are likely to need on the job—gives you a large size, sturdily constructed tool chest, complete with a handy tool tote-tray, at low cost.

The heavy gauge steel is electrically welded to provide rigidity and durability. Three heavy steel hinges are welded in place. Large trunk-type handles are welded to the ends of the chest. Two lever-type clasps and a pad-lock hasp secure the cover. Cover is box-type to accommodate the tray handle. Tote tray measures 20 $\frac{1}{4}$ " x 8" x 3 $\frac{1}{4}$ " high and is partitioned to segregate tools. Finished in red enamel.

B KRA-24 "MECHANIKIT"

Size: 20" x 7 $\frac{3}{4}$ " x 7 $\frac{1}{4}$ " high.

This tool box is slightly smaller than the one above, but it is made of the same heavy gauge steel welded for rigid strength. A large carrying handle is fastened to the top of the cover. Cover is fastened with two lever-type clasp fasteners and a pad-lock hasp and it has two sturdy hinges. The partitioned tool tote tray is furnished with this Mechanikit. Box and tray have a red enameled finish.

C KRA-109 METAL TOOL BOX

Size: 25 $\frac{1}{2}$ " x 6" x 4 $\frac{1}{2}$ " high.

This long tool box can be easily carried by the fold-down handle on the cover. It is a sturdy, well built box suitable for those longer, bigger tools. It has three heavy butt-type hinges welded to the cover, and two tension lever type clasps. Heavy gauge steel is electrically welded for long life and rigidity. Red enamel finish.

D KRA-251 METAL TOOL BOX

Size: 18 $\frac{1}{2}$ " x 6 $\frac{5}{8}$ " x 4 $\frac{1}{2}$ " high.

Designed for use where only a small number of tools are needed. Has metal suitcase type handle. Cover is held in place by three sturdy butt hinges and secured by two clasps. A latch on the front permits locking the box with a padlock.

E KRA-104 METAL TOOL BOX

Size: 14" x 5 $\frac{5}{8}$ " x 2 $\frac{1}{2}$ " high.

An excellent box for storing and protecting valuable parts or tools, in the shop or on the job—keeps them away from dust and misuse. Has two welded-on hinges and one clasp. Spot-welded construction. Red enamel finish.

F KRA-32 METAL TOOL BOX

Size: 25" x 7 $\frac{3}{4}$ " x 7 $\frac{1}{8}$ " high.

This general purpose tool box has the same design and construction as the KRA-30A below. It is smaller as to width and depth, but its 25" length accommodates such pieces as gear puller slide shafts, etc. Red enamel finish.

G KRA-30A METAL TOOL BOX

Size: 20 $\frac{1}{2}$ " x 8 $\frac{3}{4}$ " x 8 $\frac{3}{4}$ " high.

Solid construction and low price make this tool box a fine value to the man with only a limited number of tools to protect. While made of slightly lighter metal than in our standard line of boxes, it is rugged enough to withstand years of normal use. Instead of usual handles, the ends of the box are formed to provide finger grips. This feature also provides supports inside the box for a KTA-4 Tote Tray shown on page 12. The tray is not included with this tool box and must be ordered as a separate item. A strong suitcase-type handle is attached to the top of the cover which is secured by two tension lever clasps, one of which can be padlocked. Finished in red enamel.

H KTA-5 LARGE TOTE TRAY

Size: 18" x 10" x 4 $\frac{1}{2}$ " high.

This large, sturdy tray is extremely useful where many tools must be carried to the job. A 10" x 6" shelf is handy for sockets, etc. The high handle provides knuckle clearance. Tray has four rubber feet.

I KRA-406 SMALL HANG-ON TRAY

Size: 14" x 6" x 5 $\frac{5}{8}$ " deep.

Will hang on any Roll-Cab having a $\frac{3}{8}$ " or larger top lip or on the edge of a drawer. Does not attach permanently. It is handy for laying out small tools or parts.

J KRA-412 FOLDING SHELF

Size: 15 $\frac{1}{8}$ " x 12" with $\frac{1}{4}$ " lip.

Bracket slips over raised lip of cab and shelf is hinged to the bracket... folds out of way when not needed. Bracket has drilled holes for bolting.

K DRAWER DIVIDERS

For partitioning any drawer 1" high or higher. Cut two lengths of slotted strip and one of divider strip and set in drawer as shown. Slots are $\frac{1}{16}$ " apart.

KRA-10 Slotted Strip. 32" long.

KRA-11 Divider Strip. 32" long.

L KRA-16 HANG-ON VALVE RACK

Has 16, $\frac{1}{16}$ " diameter holes to hold valves during engine overhaul. Hangs on any cab or chest having a $\frac{1}{4}$ " or larger lip. 20 $\frac{1}{4}$ " x 4 $\frac{5}{8}$ " x 12 $\frac{1}{4}$ " long hanging lip.

M KR-402 ROLL-CAB HANDLE

This new handle is assembled from heavy gauge interlocking sheet steel sections and has rubber end covers. It measures 15 $\frac{1}{4}$ " long, 12 $\frac{7}{32}$ " high, 1 $\frac{1}{16}$ " deep and is held $\frac{1}{4}$ " away from the cab by metal spacers. It is furnished with the Roll-Cabs shown on pages 6, 14, 15, 154 and 155. Roll-Cabs on pages 8, 9 and 10 are drilled to accept the handle, but it must be ordered separately as optional unit.



ABOVE: "ROLLA-BENCH" WITH OPTIONAL SET OF THREE BOTTOM DRAWERS IN PLACE.

RIGHT: ALUMINUM ROLL FRONT LOCKS ENTIRE CONTENTS.



LEFT: OPTIONAL LIGHT FIXTURE MAY BE CONNECTED TO JUNCTION BOX OR WALL OUTLET



Snap-on ROLLA-BENCH TAKES TOOLS AND BENCH RIGHT TO THE JOB

A PORTABLE WORK BENCH AND ROOMY TOOL AND EQUIPMENT CABINET IN ONE UNIT

Here you have ample facilities for the orderly arrangement of your wrenches, hand tools and storage space for electrical drills, etc.

Cab top and bottom are made of rugged 14 gauge steel. Top is reinforced to provide a sturdy base for grinders and other equipment and has a heavy masonite work surface. Entire unit is heavy gauge steel, electrically welded for great strength and long service and, with exception of roll front, is finished in baked-on enamel. Roll front is of interlocking aluminum panels in satin finish. It glides up, over and behind the drawers, a feature especially useful where limited space makes hinged doors inconvenient. A tumbler-type lock is supplied.

All drawers have easy gliding slide runners. A fixed stop prevents drawers from pulling out completely. Large drawers have extra wide runners and all runners are set low to gain maximum rigidity and sag-proof support. A welded-in dividing strip lengthwise in the long drawers adds rigidity and helps segregate contents. Drawer pulls are full length with stainless steel trim strips.

The push-bar handle is chromium plated and can be used as extension cord holder. The light fixture and junction box are extra accessories and not included with the roll-cab.

MODELS AVAILABLE

A KRA-300B Rolla-Bench with 8 drawers, Red Enamel Finish.

KGA-300B Rolla-Bench with 8 drawers, Grey Enamel Finish. Note: Light, wiring and junction box are not included but are available as accessory units.

SPECIFICATIONS

Overall Dimensions: 33" x 19" x 37 $\frac{1}{8}$ " top to floor.

3 Drawers: 8 $\frac{1}{4}$ " x 15 $\frac{1}{2}$ " x 1 $\frac{1}{16}$ " deep.

3 Drawers: 26 $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " x 1 $\frac{1}{16}$ " deep.

2 Drawers: 26 $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " x 3 $\frac{3}{16}$ " deep.

The five long drawers have a lengthwise divider.

Open Compartment: 27 $\frac{3}{4}$ " x 18" x 12 $\frac{1}{2}$ " deep.

Casters: 2 Fixed, 2 swivel, with wheel brakes. 5" diameter hard composition wheels.

Weight: Net 188 lbs.; Shipping: 220 lbs.



KRA-404

B ACCESSORY UNITS

KRA-431A Set of Three Drawers — red finish.

KGA-431A Set of Three Drawers — grey finish.

Above drawers are available for users who need additional drawer space. They fit perfectly into factory installed slides in the lower compartment as shown above. Each drawer is 26 $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " x 3 $\frac{3}{16}$ " deep. Weight of the set is 25 $\frac{1}{2}$ lbs.

KRA-404 Deep Accessory Drawer — Red Enamel Finish.

KGA-404 Deep Accessory Drawer — Grey Enamel Finish.

Deep Accessory Drawers above are designed to hold electrical meters or other large items. Dimensions are: 27 $\frac{1}{2}$ " wide, 15 $\frac{1}{16}$ " front-to-back and 6 $\frac{3}{8}$ " deep. A 1" stiffener located in the center of the drawer, across the full width, gives added strength to the drawer. The KRA-404 can be placed under the bottom two drawers of the roll cab or it can replace the bottom drawers. There are any number of possible combinations, three of which are illustrated.

KRA-303 Junction Box — red enamel finish.

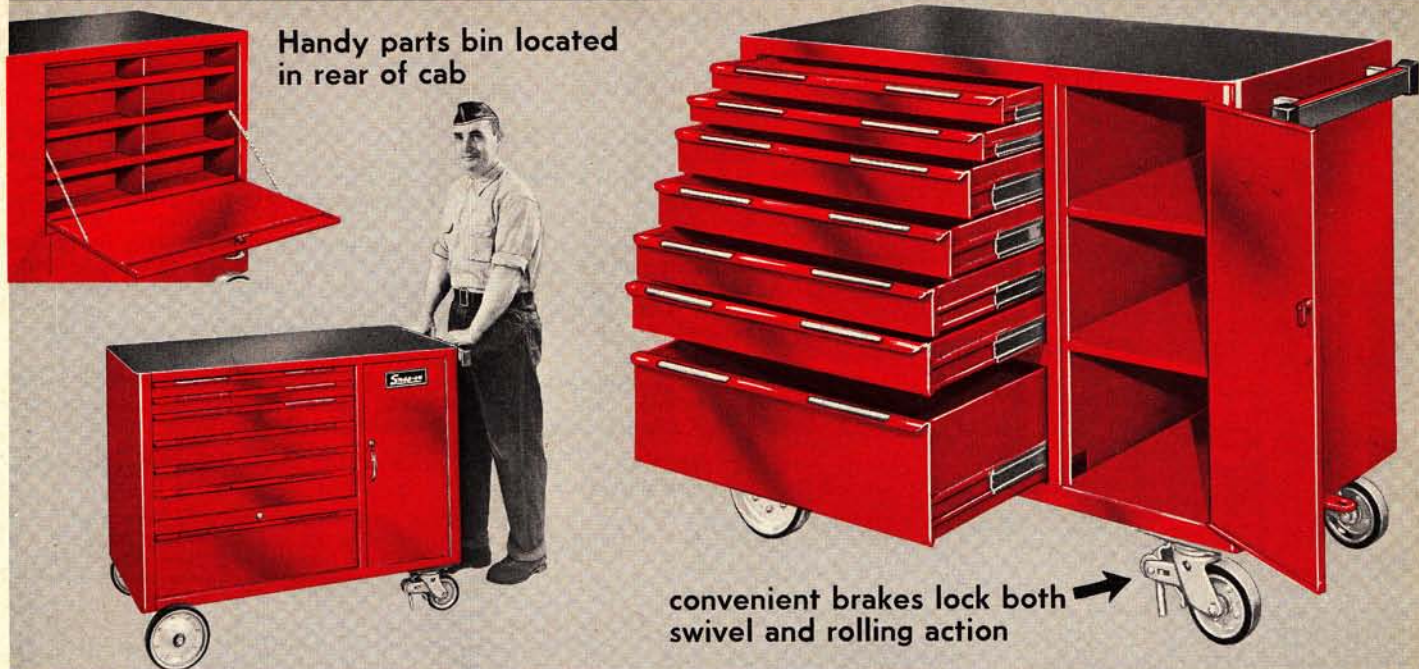
KGA-303 Junction Box — grey enamel finish.

This unit fits into a factory prepared opening and retaining bracket in the cab. It has a 3-conductor inlet and two 3-conductor outlets. Ten feet of No. 16 3-conductor cord and fittings are included.

KRA-304 Light Fixture. Attaches to back of cab. Flexible top provides convenient usage. 2-conductor cord may be plugged into wall outlet or junction box. Available in red finish only.



Snap-on ROLL-CAB FOR HEAVY DUTY INDUSTRIAL WORK



KRA-396A Industrial Roll Cab — A portable work-shop designed to withstand long, hard service and provide ample storage space for easy transport.

Six spacious drawers accept a wide variety of tool shapes and sizes. Drawers are equipped with non-spill slide runners which glide easily, even when drawers are loaded with tools. One tumbler type lock secures all drawers to protect contents against theft.

A large vertical storage compartment with two removable shelves is especially useful for storing large items. A tumbler lock secures the door for safe storage. Door has full length hinge.

A bin type compartment divided into eight sections accommodates small parts and fittings, and is located in the rear of the cab. A $\frac{3}{4}$ " lip prevents parts from rolling out of compartments and a hinged door (shown open) secures the whole section.

Four heavy duty rubber tired wheels (two of which swivel) provide easy transport of the cab. Brakes on the swivel wheels lock both the swivel and the rolling action. A chromium plated bar handle is provided for manual movement, and a tongue-hitch permits attachment to a powered vehicle.

KRA-303 Accessory Junction Box — This optional item has a three-conductor inlet and two three-conductor outlets. Ten feet of No. 16 three-conductor cord and fittings are included.

SPECIFICATIONS

Overall Dimensions: 48" x 30 $\frac{1}{2}$ " x 37- $\frac{3}{16}$ " top to floor.

Cabinet Dimensions: 45" x 24" x 30- $\frac{1}{16}$ ".

Rear Bin Compartment: 27 $\frac{1}{8}$ " x 17- $\frac{5}{16}$ " x 6" front-to-back divided into 8 bins, 13 $\frac{3}{8}$ " x 6", 4 $\frac{1}{2}$ " high.

Drawers:

Two top drawers 26-11/16" x 15-3/16" x 1-11/16" deep. (This drawer has a 1" high lengthwise divider.)

3rd & 4th drawers 26-11/16" x 15-3/16" x 3" deep.

5th and 6th drawers 26-11/16" x 15-13/16" x 3-3/16" deep. (Both drawers have a 1" high, lengthwise divider.)

7th drawer 26-11/16" x 15-3/16" x 7-9/16" deep. (This drawer has a 1" high, front-to-back divider.)

Vertical Compartment: 15-3/16" x 23-13/16" x 28 $\frac{1}{2}$ " high.

Removable shelves: divide height into three equal sections.

Wheels: Two fixed wheels, 8" diameter, 1 $\frac{1}{4}$ " tread width.

Two swivel wheels, 5" diameter, 1 $\frac{1}{4}$ " tread width. (Equipped with combination swivel tire lock brake.)

WHEEL YOUR TOOLS AND EQUIPMENT RIGHT TO THE JOB

KRA-341A Roll Cab — combines maximum portability with maximum storage "space" for use where tool and part transportation is a problem. This sturdy tool cabinet is mounted on four wheels, two 5" lock-type swivel casters in front for easy steering and two 10" x 2" wide semi-pneumatic tires on the rear which make this unit easy to handle on stairs and rough flooring in or outside of the plant or garage. The two sturdy handles provide easy control and have comfortable plastic handle bar grips. Three reinforced drawers slide easily on wide, heavy duty runners and feature full-length drawer pulls. The large lower compartment has a panel cover which slides in under the drawers when compartment is open allowing easy access to tools and parts. A tumbler lock secures the drawers automatically when the

lower compartment is closed and locked. This unit is built of heavy gauge steel and features all-welded construction to assure long dependable service. The cab has a red enamel finish.

SPECIFICATIONS

Cabinet Dimensions:

26 $\frac{5}{8}$ " x 19-5/32" x 26 $\frac{7}{8}$ " high

Overall Dimensions:

32 $\frac{1}{4}$ " x 26 $\frac{3}{4}$ " x 35 $\frac{1}{2}$ " high

3 Drawers all are:

21 $\frac{5}{8}$ " x 17 $\frac{5}{8}$ " x 3 $\frac{7}{8}$ " high

Compartment:

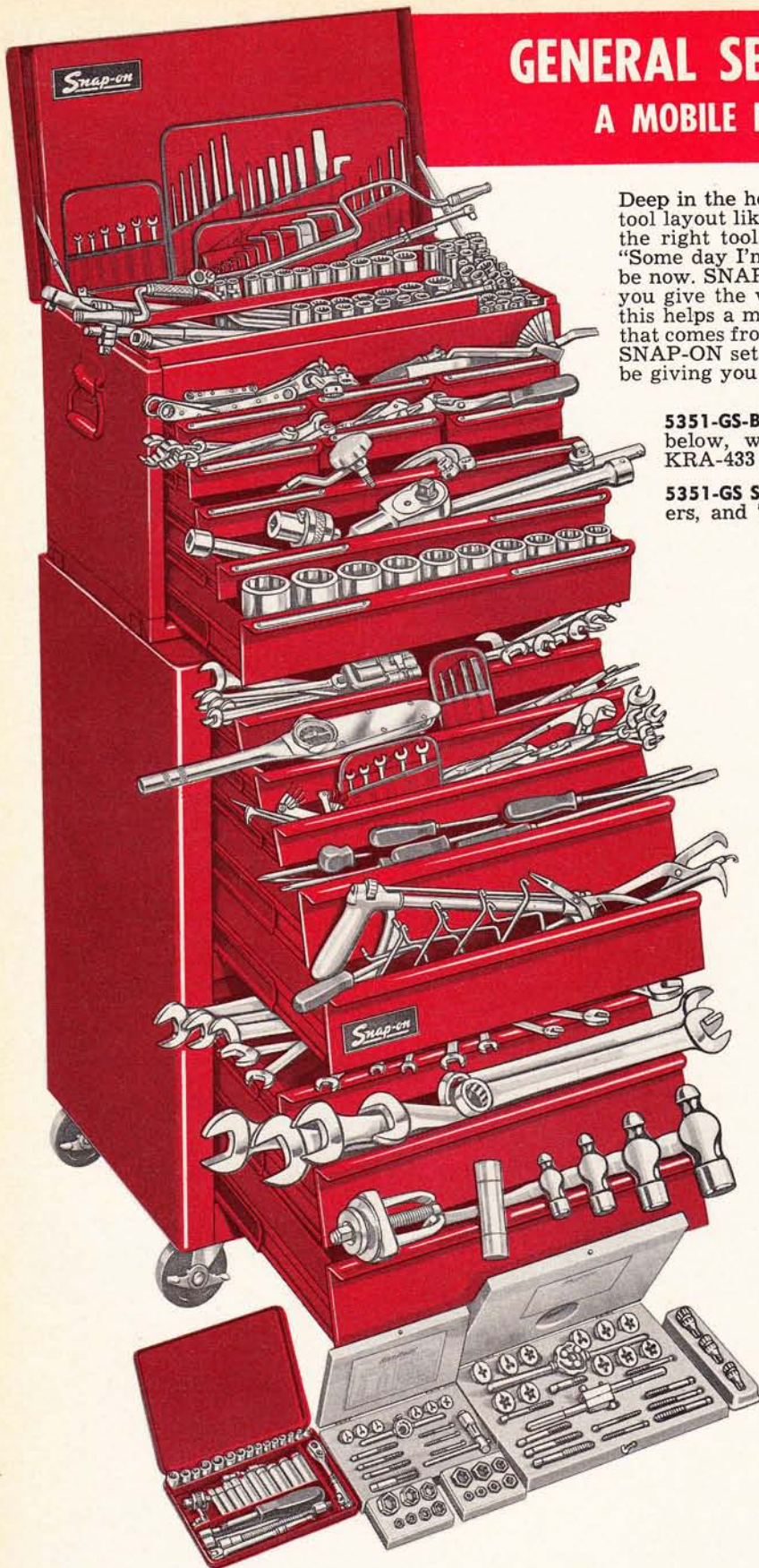
26 $\frac{1}{2}$ " x 19" x 12" high

Net weight: 125 lbs.



GENERAL SERVICE SET 5351-GS-B

A MOBILE REPAIR SHOP—351 TOOLS



Deep in the heart of every real mechanic there's a hankerin' for a tool layout like this. When you have a rush job and you don't have the right tool—that is when it hits you. That is when you say, "Some day I'm gonna have a box full." Well, that "some day" can be now. SNAP-ON will roll this outfit into your shop—as soon as you give the word—and arrange easy payment terms. A set like this helps a man make money by putting into his hands the speed that comes from both tool selection and quality. You get both in this SNAP-ON set. SNAP-ON tools fit better and feel better, they will be giving you service long after cheap tools hit the scrap heap.

5351-GS-B General Service Set. Complete selection of tools listed below, with our KRA-59A Chest, KRA-377B Coaster-Cab, KRA-433 Set of Drawers and KTA-3 Tote Tray.

5351-GS Set. Above set without the Chest, Coaster-Cab, Drawers, and Tote-Tray.)

Stock Number	Description	See Page
AW-1013-K	Hex Head Wrench Set.....	81
CX-605	Half Moon Boxocket Set.....	85
DS-806-K	Ignition Wrench Set.....	77
OEX-719	Long Combination Wrench Set.....	79
OEXS-709	Short Combination Wrench Set.....	79
OXI-705-K	Midget Combination Wrench Set.....	79
PPC-200-K	Chisel and Punch Set.....	71
RB-606S	Ratcheting Boxocket Set.....	85
RXH-607S	Flarenut Wrench Set.....	87
SR-40K	Stud Extractor Set.....	59
SS-40	Screw Starter Set.....	76
SCD-30	Cabinet Screw Driver Set.....	74
SSDP-50	Phillips Screw Driver Set.....	73
SSDS-50	Standard Tip Screw Driver Set.....	72
TD-2400A	Tap and Die Set — ¼" to ½".....	60
TD-2500	Tap and Die Set — 4-36 to 12-24.....	60
TDC-34	Thread Chaser Set.....	61
TRC-7A	Rethreader Set, N.C. ¼" to ½".....	61
TRF-7A	Rethreader Set, N.F. ¼" to ½".....	61
VS-809	Angle Head Open End Wrench Set.....	81
XS-607	Dwarf Boxocket Set.....	83
45	5½" Gripping Plier.....	66
47	7½" Gripping Plier.....	66
60R	7¾" Duck-Bill Plier.....	68
70A	Lock Ring Plier.....	69
87	7¼" Diagonal Cutter.....	67
90A	9¼" Interlocking Gripping Plier.....	66
94	4½" Needle Nose Plier.....	68
96	7" Needle Nose Plier.....	68
105	5" Ignition Plier.....	66
131A	Brake Spring Plier.....	69
184	4¼" Diagonal Cutter.....	67
208B	7¾" Battery Plier.....	66
650	6" Roll-Head Pry Bar.....	71
1650	16" Roll-Head Pry Bar.....	71
B-1356B	Brake Shoe Spring Compressor.....	100
B-1461	Brake Adjusting Tool.....	101
B-1462A	Brake Adjusting Tool.....	101
BH-92	1 Lb. Plastic Tip Hammer.....	76
BL-41A	Brake Cylinder Clamp Set.....	100
BP-208	½ Lb. Ball Peen Hammer.....	76
BP-216	1 Lb. Ball Peen Hammer.....	76
BP-232	2 Lb. Ball Peen Hammer.....	76
BP-48	3 Lb. Ball Peen Hammer.....	76
CG-250	2-Jaw Screw-Type Gear Puller.....	118
CT-6	Circuit-Spark Tester.....	106
FB-301	Spark Plug Wire Gauge.....	89
FB-326	Feeler and Ignition Gauge.....	89
HS-12	Deluxe Hacksaw Frame.....	92
RC-40C	Piston Ring Compressor.....	103
RC-500	Piston Ring Groove Cleaner.....	103
CP-3A	Cotter Pin Tool.....	71
S-6404A	Brake Spring Tool.....	100
S-8353B	Brake Adjusting Tool.....	101
SSD-153	Screw Driver.....	74
SSD-422A	Screw Driver, 22" blade, ⅝" tip.....	73
TE-175	175 Ft. Lb. Capacity Torqometer.....	26
V-22	Valve Adjusting Tool.....	129

See pages nine and twelve for full descriptions of the extra large Chest and the Coaster-Cab with extra drawer section shown above. This rugged outfit will give years of satisfactory service.

Stock Number	Description	See Page
136-TMB	Midget Socket Wrench Set.....	30
209-FU	Ferret Hex Flexocket Set.....	37
211-SF-Y	Ferret Deep Hex Socket Set.....	37
219-FP	Ferret Socket Wrench Set.....	39
311-S-Y	Master Deep Hex Socket Set.....	43
325A-M	Master Socket Wrench Set.....	44
414A-HD	Heavy Duty Socket Wrench Set.....	48

Work easier, faster, and fatten up your **PAY CHECK** With this time saving selection of quality tools

Snap-on GENERAL PURPOSE SET ON WHEELS 5241-GS-B

241 TIME SAVING TOOLS IN YOUR OWN ROLLING WORKSHOP

Here is the set you need to put your skill and mechanical know-how into a higher earning level. Every minute you spend using make-shift tools or trudging back and forth from the job to your tool container whittles away at your earning power.

Each tool in this set will find regular use in day to day service and repair work. The set is an excellent choice for any mechanic who services factory machines, gas or diesel engines, cars and trucks, material handling equipment, aircraft, etc.

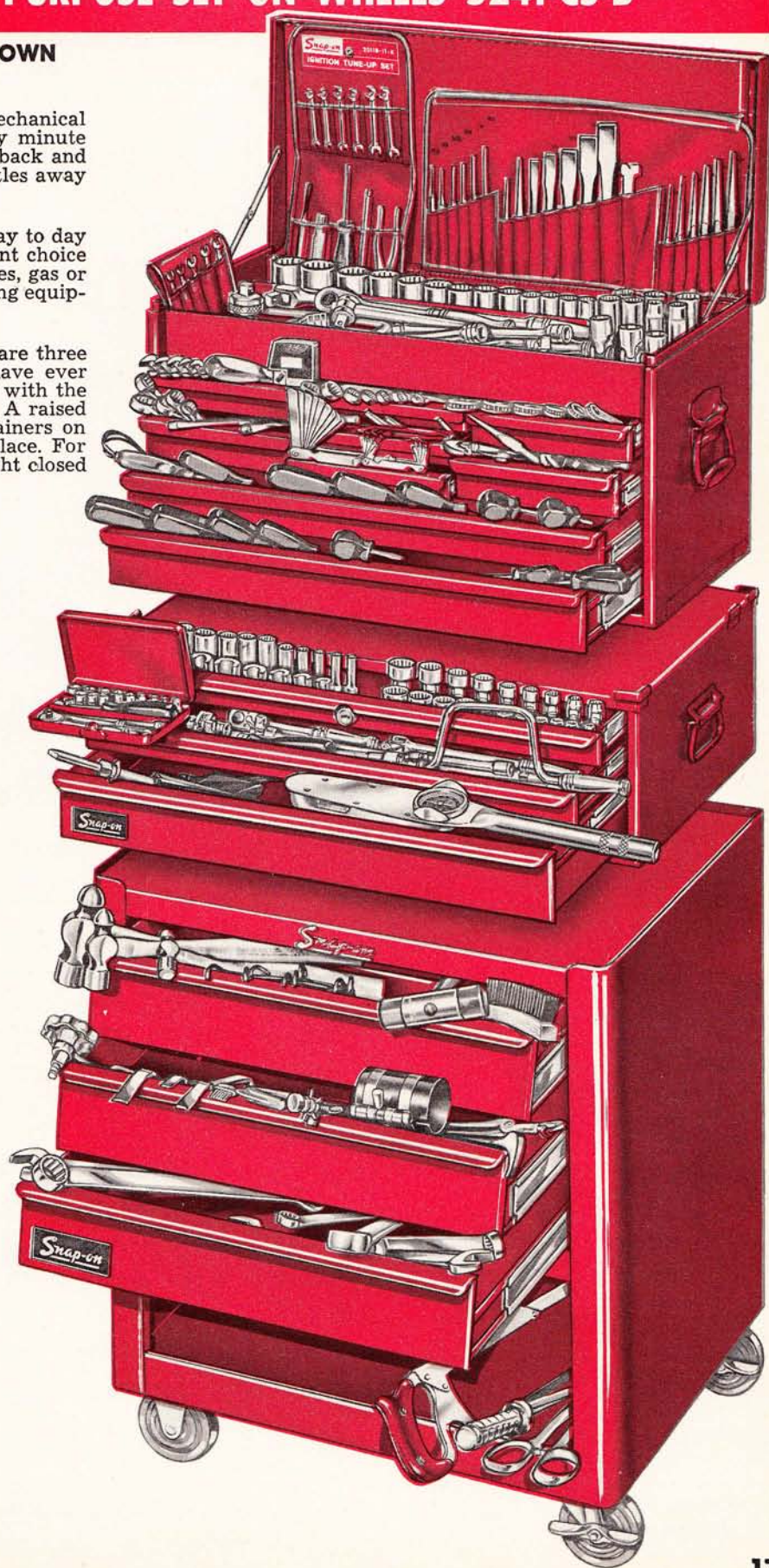
The Chest and Drawer Section and Roll-Cab are three of the most popular tool storage units we have ever offered. Each unit is designed to fit perfectly with the others and give you an outfit second to none. A raised rim around the Roll-Cab top and corner retainers on the Drawer Section hold the three units in place. For complete descriptions see page 8. Overall height closed is 52 inches.

5241-GS-BB Set. All tools listed below, in KRA-360C Combination as illustrated.

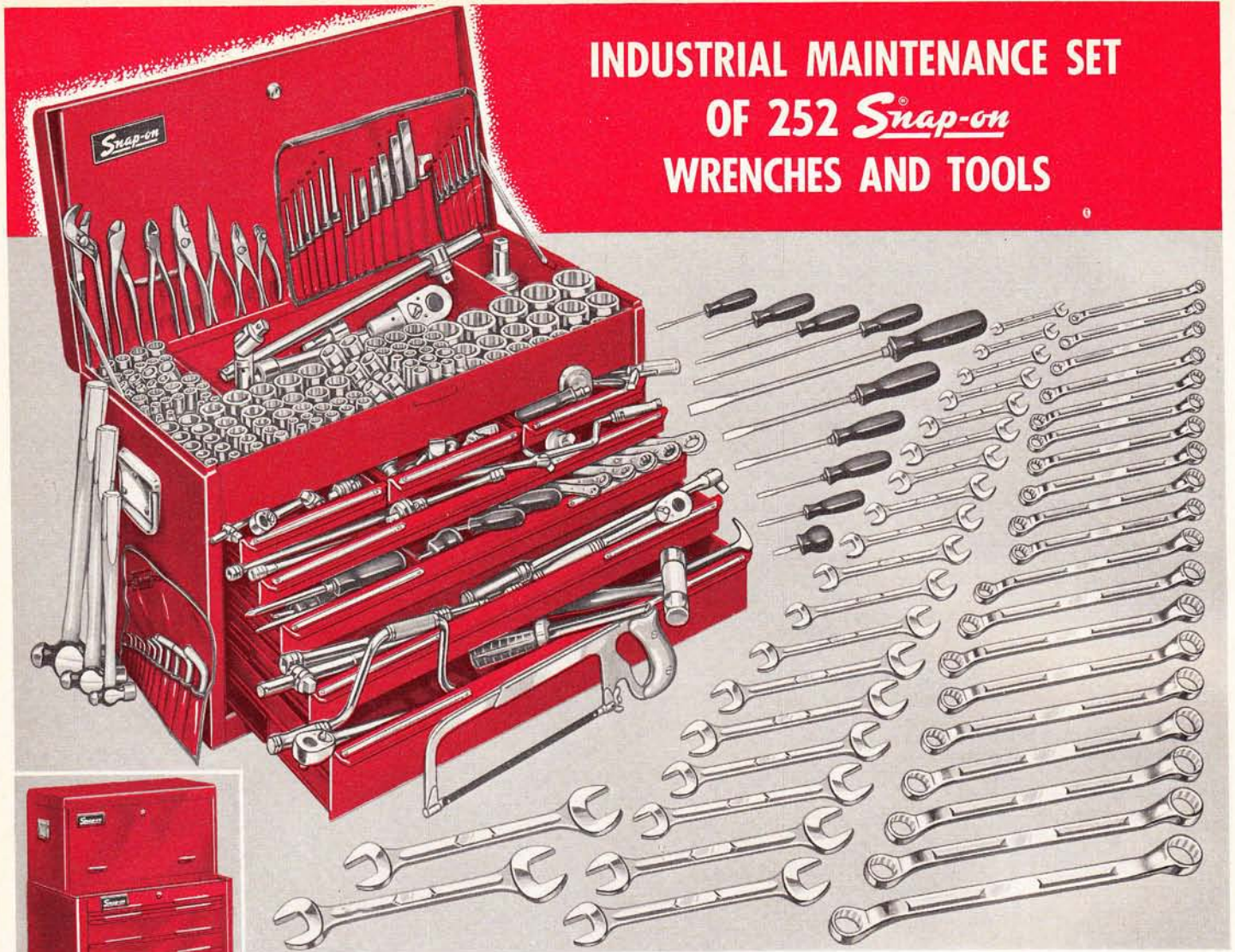
5241-GS-BA Set. All tools listed, in KRA-362B Combination (Chest and Roll-Cab only.)

5241-GS Set. All tools listed below.

Stock Number	Description	See Page
120-TMP-B	Midget Socket Wrench Set.....	31
250A-F	Ferret Socket Wrench Set.....	38
336A-M	Master Socket Wrench Set.....	45
2011B-IT-K	Tune-up Kit.....	77
AW-1013-K	Hex Head Wrench Set.....	81
CX-605	Half Moon Boxocket Set.....	85
OEX-714	Combination Wrench Set.....	79
OXI-705	Midget Combination Wrench Set...	79
PPC-200-K	Chisel and Punch Set.....	71
PL-70C	Set of Seven Pliers.....	66
RB-606S	Ratcheting Boxocket Set.....	85
SCD-30	Cabinet Screw Driver Set.....	74
SS-40	Screw Starter Set.....	76
SSD-145	Spark Test Screw Driver.....	74
SSDP-50	Phillips Screw Driver Set.....	73
SSDS-50	Std. Tip Screw Driver Set.....	72
XS-607	Dwarf Boxocket Set.....	83
BH-92	1 lb. Plastic Tip Hammer.....	76
131A	Brake Spring Plier.....	69
1650	Pry Bar.....	71
AC-58B	Wire Brush.....	107
B-1356B	Brake Shoe Spring Compressor....	100
B-1458A	Brake Bleeding Wrench.....	101
B-1461	Brake Adjusting Tool.....	101
B-1462A	Brake Adjusting Tool.....	101
B-1463A	Brake Bleeding Wrench.....	101
BL-41A	Set of 4 Brake Cyl. Clamps.....	100
BP-204	4 oz. Ball Peen Hammer.....	76
BP-212	12 oz. Ball Peen Hammer.....	76
BP-232	2 lb. Ball Peen Hammer.....	76
CD-12	Tinners Snips.....	133
CS-1	Carbon Scraper.....	107
CT-4B	Electric Circuit Tester.....	106
FB-301	Spark Plug Gauge.....	89
FB-310	Feeler Gauge.....	89
GA-508A	8 ft. Steel Tape Rule.....	104
HS-8	Hack Saw Frame.....	92
HS-13	Jab Saw.....	104
R-115C	Soldering Gun.....	64
RC-500	Piston Ring Groove Cleaner.....	103
RC-40C	Piston Ring Compressor.....	103
S-9523	Chevrolet Brake Adj. Tool.....	101
TE-175	175 Ft. Lb. Capacity Torqometer...	26
V-22	Valve Adjusting Tool.....	129



INDUSTRIAL MAINTENANCE SET OF 252 *Snap-on* WRENCHES AND TOOLS



KRA-361E COMBINATION Tremendous amount of storage space in this chest and Roll-Cab. Described in detail and shown in color on page 66.



KRA-300B ROLLA-BENCH Saves hours of a mechanic's time. You'll find it described and shown in color on page 14.

Snap-on 5252-GS-B INDUSTRIAL MAINTENANCE SET A Time Saving Selection of the Wrenches and Hand Tools Frequently Needed for Repair Work on Machinery of All Types

The right tool . . . at the right place . . . at the right time — that is one of the biggest factors which can contribute to faster, more accurate machinery maintenance or repair. Here is a selection of wrenches and hand tools which provides every standard wrench size from $\frac{1}{4}$ " up to 2" and wrench types to suit any given situation. Complete descriptions of the various groups and units comprising this set will be found on the pages listed at right.

Suitable Cabinets for This Set

The time saving way to operate is to use a "Rolla-Bench" or "Roll-Cab" which will transport the complete tool equipment from crib to job. It puts all the tools right where they are needed . . . eliminates time wasting "tool trips" and increases the efficiency of maintenance departments. Color illustrations and complete descriptions of SNAP-ON "Roll-Cabs," "Rolla-Benches," Tool Trucks and Tool Chests are found on pages 6 to 15.

5252-GS Industrial Maintenance Tool Set. Tools only.

5252-GS-B Maintenance Set. Complete as illustrated in the KRA-61B Super Chest.

5252-GS-BA Maintenance Set. Complete in KRA-361E Super Chest and Roll-Cab Combination.

5252-GS-BB Maintenance Set. Complete in KRA-300B Rolla-Bench.

Contents of the 5252-GS Industrial Maintenance Set

Stock Number	Description	See Page
250A-F	Ferret Socket Wrench Set.....	38
367-M	Master Socket Wrench Set.....	44
425A-HD	Heavy Duty Socket Wrench Set....	48
VSO-820	Open End Wrench Set.....	80
XV-619	Boxocket Wrench Set.....	82
RB-606S	Ratcheting Boxocket Set.....	85
AW-1013-K	Hex Head Wrench Set.....	81
SS-9	Screw Starter.....	76
SCD-30	Cabinet Screw Driver Set.....	74
SSD-12A	Screw Driver.....	72
SSD-14S	Spark Test Screw Driver.....	74
SSD-234	Screw Driver.....	73
SSDS-50	Screw Driver Set.....	72
SSDP-50	Phillips Screw Driver Set.....	73
SSDP-64	Phillips Screw Driver.....	73
PPC-200-K	Chisel & Punch Set.....	71
PL-70C	Set of 7 Pliers, Nos. 9C, 50C, 47, 35C, 87, 196, 208B.....	66
No. 1650	Pry or Jimmy Bar.....	71
BP-204	4 oz. Ball Peen Hammer.....	76
BP-212	12 oz. Ball Peen Hammer.....	76
BP-232	2 lb. Ball Peen Hammer.....	76
BH-92	1 lb. Plastic Tip Hammer.....	76
HS-13	Jab Saw.....	92
HS-8	Hack Saw.....	92
GA-524A	12 ft. Steel Tape Rule.....	104

Snap-on No. 5590-GS-B SHOP-MASTER SET FOR GENERAL AUTOMOTIVE SERVICE

590 TOOLS AND SPECIALIZED SETS ESSENTIAL FOR COMPLETE SERVICE

No matter how skillful a man may be or how much mechanical knowledge he may have he still cannot work without tools. In order to operate efficiently and turn out the type of service and repair work that builds customer satisfaction and brings a profitable return on his labor, the mechanic who wants to get ahead considers a complete tool set an investment in his future.

Here is such a set. It contains all types of wrench equipment in complete ranges of sizes and includes Impact and Torque wrenches. Every standard type of mechanic's tool is provided together with special tools for brake service, valve work, etc. The selection also includes instruments and gauges for engine tune-up, tap and die sets, an electric drill, interchangeable gear puller parts, and many other items, even a seat cover and fender cover. Adding mobility to the Shop-Master Set is the KRA-352B Roll-Cab, KRA-429 Drawer Section and KRA-59A Tool Chest.

Invest in your future NOW. Your SNAP-ON dealer can arrange a SNAP-ON conditional sales contract for you.

5590-GS-B Shop-Master Set. Contains all items listed below.

5590-GS Set. Above set, but without the KRA-59A Chest, KTA-3 Tote-Tray, KRA-429 Drawer Section and KRA-352B Roll-Cab.

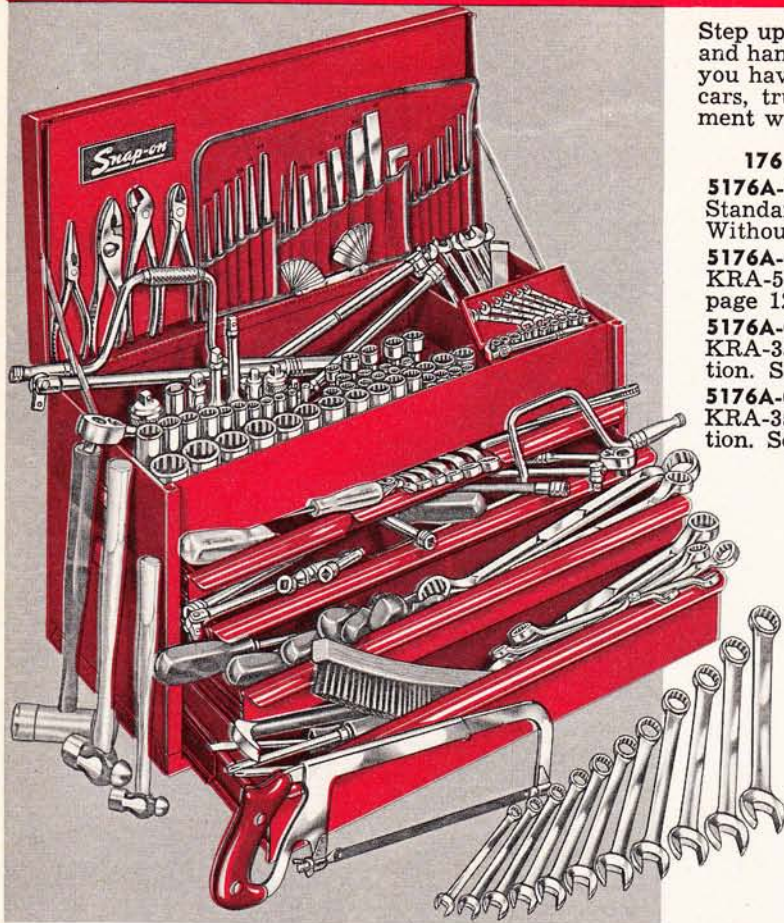


Stock Number	Description	See Page
167-TM-B	Midget Socket Wrench Set.....	30
299A-F	Ferret Socket Wrench Set.....	38
367-M	Master Socket Wrench Set.....	44
414A-HD	Heavy Duty Socket Wrench Set.....	48
310-IMB	Set — Impact Flexsockets.....	50
311-IM-Y	Set — Impact Hex Sockets.....	51
A-157A	Bushing Driver Set.....	110
CJ-105A	Gear Puller Set.....	125
CJ-282B	Gear Puller Set.....	123
CX-605	Half Moon Boxsocket Set.....	85
DB-113	Drill Set — 1/8" to 1/4".....	63
DS-808-K	Ignition Wrench Set.....	77
E-1020	Screw & Stud Extractor Set.....	59
FH-607-C	Flexhead Wrench Set.....	88
LTA-808	Tappet Wrench Set.....	77
MT-308F-B	Compression Gauge Set.....	146
MT-311D-B	Vacuum Gauge Set.....	146
OC-40	Oil Can Set.....	98
OEX-714	Long Combination Wrench Set.....	79
OEXS-709	Short Combination Wrench Set.....	79
PPC-200-K	Chisel and Punch Set.....	71
RB-606S	Ratcheting Boxsocket Set.....	85
RKH-607S	Flare Nut Wrench Set.....	87
SCD-30	Cabinet Screwdriver Set.....	74
SS-40	Screw Starter Set.....	72
SSDS-50	Standard Screw Driver Set.....	72
SSDP-50	Phillips Screwdriver Set.....	73
TD-2400A	Tap-Die Set — 1/4" to 1/2".....	60
TD-2500	Tap-Die Set — 4-36 to 12-24.....	60
VSO-815	Open-End Wrench Set.....	80
XI-604A-K	Midget Boxsocket Set.....	83
XV-619	Boxsocket Wrench Set.....	82
020	1/4" Offset Screwdriver.....	76
030	3/8" Offset Screwdriver.....	76
6-M	6" Mill File.....	135
8-HR	8" Half-Round File.....	135
9C	8 3/4" Gripping Plier.....	66
10-M	10" Mill File.....	135
47	7 1/2" Gripping Plier.....	66
50C	5" Gripping Plier.....	66
70A	Lock Ring Plier.....	67
85	4 1/2" Diagonal Cutter.....	67
87	7 1/4" Diagonal Cutter.....	67
96	7 1/4" Needle Nose Plier.....	68
131A	Brake Spring Plier.....	69
208B	7 3/4" Battery Plier.....	66
650	6" Pry Bar.....	71
1650	16" Pry Bar.....	71
A-91B	Strap Wrench.....	98

Stock Number	Description	See Page
A-161A	Door Panel Remover.....	133
AC-58B	Wire Brush.....	107
ACD-12	Distributor Cleaning Brush.....	102
B-145B	Brake Bleeder Wrench.....	101
B-1461	Brake Adjusting Tool.....	101
B-1462A	Brake Adjusting Tool.....	101
B-1463A	Brake Bleeder Wrench.....	101
B-3404B	Brake Adjusting Tool.....	101
BH-92	1 lb. Ball Peen Hammer.....	76
BL-41A	Brake Cyl. Clamp Set.....	100
BP-204	4 oz. Ball Peen Hammer.....	76
BP-212	12 oz. Ball Peen Hammer.....	76
BP-220	1 1/4 lb. Ball Peen Hammer.....	76
BP-232	2 lb. Ball Peen Hammer.....	76
BP-48	3 lb. Ball Peen Hammer.....	76
DAS-10	Tinners Snips.....	133
CK-6A	Fender Covers.....	135
CK-15A	Seat Cover.....	135
CSA-12	Carbon Scraper.....	107
CT-4B	Circuit Tester.....	106
FB-301	Wire Spark Plug Gauge.....	89
FB-308	Step Feeler Gauge.....	89
FB-325	General Use Feeler Gauge.....	89
GA-51A	16 1/2" Inspection Mirror.....	129
GA-98	Adjustable File Handle.....	135
GA-265	1 1/2" Flexible Gripping Tool.....	129
GCP-10	Grease Cap Plier.....	99
HB-5	Ignition Point File.....	102
HCP-48BP	Hose Clamp Plier.....	69
HS-12	Hack Saw Frame.....	92
IM-5	Air Impact Wrench.....	28
IMB-80	Impact Universal Joint.....	50
KRA-419	Rack for Test Meters.....	150
MT-702	Alternator-Regulator Tester.....	150
MT-715	Tach-Dwell Meter.....	150

Stock Number	Description	See Page
MT-730	Ignition Analyzer.....	150
F-42	3/4" Tip Impact Screw Driver.....	37
F-52	5/16" Tip Impact Screw Driver.....	37
F-62	3/8" Tip Impact Screw Driver.....	37
PF-100	5/16" Impact Hex Socket.....	50
PF-120	3/8" Impact Hex Socket.....	50
PF-140	1/2" Impact Hex Socket.....	50
PF-160	5/8" Impact Hex Socket.....	50
PF-180	3/4" Impact Hex Socket.....	50
PF-200	7/8" Impact Hex Socket.....	50
PIT-120	Impak Driver.....	39
PJ-10A	Lock-ring Plier.....	69
PS-6	5" Impact Extension Bar.....	50
SP-32	No. 3 Impact Phillips Driver.....	50
SP-42	No. 4 Impact Phillips Driver.....	50
SW-28	7/16" Tip Impact Screw Driver.....	50
SW-32	1/2" Tip Impact Screw Driver.....	50
PT-7	6" Magnetic Pick-up Tool.....	129
PT-28	27" Magnetic Pick-up Tool.....	129
R-115C	Soldering Iron.....	64
S-9523	Chevy Brake Adjusting Tool.....	101
SSD-145	Spark Testing Screw Driver.....	74
SSDP-102	Long No. 2 Phillips Driver.....	73
ST-012A	1 & 2 Phillips Offset Driver.....	76
ST-034A	3 & 4 Phillips Offset Driver.....	76
TK-50A	Dist.-Regulator Tool Kit.....	102
TE-12	Torqometer, 0-150 Inch Pound.....	26
TE-175	Torqometer, 0-175 Foot Pound.....	26
V-22	Overhead Valve Adjusting Tool.....	129
KRA-59A	Large Tool Chest.....	12
KTA-3	Tool Tote Tray.....	12
KRA-429	Drawer Section.....	8
KRA-352B	Roll-Cab.....	8

Snap-on 5176A-GS-B STANDARD SERVICE SET—176 TOOLS



Step up your earning power with this fine selection of wrenches and hand tools. You'll get more jobs completed in less time when you have the right tool ready for use when you need it. Service cars, trucks, tractors, power mowers, all kinds of farm equipment with this big set. It's a repair shop in a box.

176 Tools in Set

5176A-GS. Mechanic's Standard Service Set. Without chest.

5176A-GS-B Set. In KRA-56A Chest. See page 12.

5176A-GS-BA Set. In KRA-357B Combination. See page 8.

5176A-GS-BB Set. In KRA-359B Combination. See page 8.

Stock Number	Description	See Page
113-TM-B	Midget Wrench Set.....	31
250A-F	Ferret Wrench Set.....	38
325A-M	Master Wrench Set.....	44
DS-806	Ignition Wrench Set.....	77
OEX-711	Combination Wrench Set.....	79
PPC-200-K	Chisel and Punch Set.....	71
SSDP-50	Phillips Screw Driver Set.....	73
SSDS-50	Std. Screw Driver Set.....	72
VSO-806	Open End Wrench Set.....	80
XV-608	Offset Boxsocket Set.....	82
XS-607	Dwarf Boxsocket Set.....	83
47	Gripping Plier.....	66
50C	Midget Gripping Plier.....	66
87	Diagonal Cutter.....	67
BH-92	1 lb. Plastic Tip Hammer.....	76
196	Needle Nose Plier.....	68
208B	Battery Plier.....	66
1650	Pry Bar.....	71
AC-58B	Wire Brush.....	107
BP-204	4 oz. Ball Peen Hammer.....	76
BP-212	12 oz. Ball Peen Hammer.....	76
CS-1	Carbon Scraper.....	107
CT-6	Circuit and Spark Tester.....	106
FB-301	Wire Spark Plug Gauge.....	89
FB-326	Feeler Gauge.....	89
SS-5	Screw Starter.....	76
HS-8	Hack Saw Frame.....	92
PT-28	Magnetic Pick-up Tool.....	129
R-1618	Ratcheting Boxsocket.....	85
S-9704B-FU	Spark Plug Flexsocket.....	105
SSD-145	Spark Test Screw Driver.....	74

Snap-on NUT TURNING SET 5184A-GS-B 184 WRENCHES

HANDLES EVERY TYPE OF NUT TURNING JOB

Ever think of this—that almost every machinery maintenance job starts and ends with wrench work? When you have the right kind and size of wrench for every job ready for immediate use, machinery repair and adjustment time is handled more safely, speedily, easily, with costly “down-time” held to a minimum. This assortment of 184 tools contains every standard wrench size from $\frac{3}{16}$ " to $1\frac{1}{8}$ " in types to handle every nut turning situation. The socket wrenches are segregated into four groups having $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", and $\frac{3}{4}$ " square drive. The 5184-GS-B set also includes the very popular KRA-58B SNAP-ON tool chest shown at right. (See page 8 for complete description of this large, ruggedly built tool chest.)

5184A-GS Maintenance Nut Turning Set. Without chest.

5184A-GS-B Set. In KRA-58B Chest. See page 8.

5184A-GS-BA Set. In KRA-362B Combination. See page 8.

5184A-GS-BB Set. In KRA-360C Combination. See page 8.



Stock No.	Description	Page	Stock No.	Description	Page
120-TMP-B	Midget Set.....	31	AW-1013-K	Hex Head Wr. Set.....	81
250A-F	Ferret Set.....	38	FH-607C	Flex-Head Wrench Set...	88
336A-M	Master Set.....	45	VSO-811	Open End Wrench Set...	80
414A-HD	Heavy Duty Set.....	48	XV-608	Boxsocket Wrench Set...	82
DS-806K	Ignition Wrench Set.....	77	XS-607	Boxsocket Wrench Set...	83
OXI-705K	Comb. Wr. Set.....	79	RB-606S	Ratch. Boxsocket Set....	85

**YOU CAN TELL AN A-1 MECHANIC
BY HIS TOOLS . . .**

**...step Up to *Snap-on* Quality
With The Popular 5110G-GS-B**

MECHANICS GENERAL PURPOSE SET

**110 Tools Mechanics Use Most Often
Complete With a Fine Tool Chest**

THOUSANDS OF MECHANICS HAVE BOUGHT THIS POPULAR SET . . . THERE'S A REASON

That's right! Mechanics started grabbing up this set as soon as it was introduced . . . thousands of the sets have been bought and it remains one of the most popular sets we have ever offered.

First, it's practical. SNAP-ON checked its records to find which tools mechanics buy most often. These are included in this set — tools like $\frac{1}{2}$ and $\frac{3}{8}$ in. drive sockets and handles, combination wrenches, ignition wrenches, screwdrivers, chisels, punches and more.

Second, SNAP-ON is a name a mechanic trusts. He knows that with these really great tools he beats the flat rates, makes more money and pays less for tools in the long run. SNAP-ON tools are giving faithful service long after the cheap ones hit the scrap.

Third, many mechanics bought the set for a little down, a little each week. So can you. Treat yourself to a gift that pays for itself while you're using it.

5110G-GS-B Mechanics' General Purpose Set. Contains all tools listed below, in KRA-53 Tool Chest.

5110G-GS Set. Above set without the tool chest.



See page 11 for a full description of the features and size specifications of the KRA-53 Mechanikit.

Stock Number	Description	See Page	Stock Number	Description	See Page	Stock Number	Description	See Page
211-SFS-Y	Deep Ferret Socket Set.....	37	FU-14A	Ferret Flexocket.....	36	PPC-4	Center Punch.....	70
219-FP	Ferret Set.....	39	FU-16A	Ferret Flexocket.....	36	S-9704D	Spark Plug Socket.....	105
312-SW-Y	Master Double Hex Socket Set...	43	FU-18A	Ferret Flexocket.....	36	SN-18A	Master Nut Spinner.....	41
2011B-IT-K	Ignition Tune-up Kit.....	77	FU-20A	Ferret Flexocket.....	36	SSD-1	Screwdriver $\frac{1}{4}$ " tip, $1\frac{1}{2}$ " blade...	72
OEXS-709	Short Combination Wrench Set....	79	FU-24A	Ferret Flexocket.....	36	SSD-2	Screwdriver $\frac{3}{16}$ " tip, $2\frac{1}{2}$ " blade...	72
OEX-711	Long Combination Wrench Set....	79	HS-8	Hack Saw Frame.....	92	SSD-4	Screwdriver $\frac{1}{4}$ " tip, 4" blade.....	72
87	Diagonal Cutter Plier.....	67	SL-710	Master Ratchet.....	40	SSD-6	Screwdriver $\frac{5}{16}$ " tip, 6" blade.....	72
90A	Heavy Duty Gripping Plier.....	66	PPC-816	Chisel $\frac{7}{16}$ " edge.....	70	SSD-8	Screwdriver $\frac{3}{8}$ " tip, 8" blade.....	72
BH-92	Plastic Tip Hammer.....	76	PPC-824	Chisel $\frac{5}{8}$ " edge.....	70	SSDP-22	Phillips No. 2 Screwdriver ($1\frac{1}{2}$ ")...	73
96	Needle Nose Plier.....	68	PPC-104	Pin Punch $\frac{1}{8}$ " point.....	70	SSDP-31	Phillips No. 1 Screwdriver (3")....	73
BP-212	12 ounce Ball Peen Hammer.....	76	PPC-106	Pin Punch $\frac{3}{16}$ " point.....	70	SSDP-42	Phillips No. 2 Screwdriver (4")....	73
CSA-12	Carbon Scraper.....	107	PPC-110	Pin Punch $\frac{5}{16}$ " point.....	70	SX-5	Master 5" Ext. Bar.....	41
FB-301	Wire Gap Gauge.....	89	PPC-204	Starter Punch $\frac{1}{8}$ " point.....	70	SX-10	Master 10" Ext. Bar.....	41
FB-325	Feeler Gauge.....	89	PPC-206	Starter Punch $\frac{3}{16}$ " point.....	70	KRA-53	Tool Chest.....	11
FU-12A	Ferret Flexocket.....	36	PPC-210	Starter Punch $\frac{5}{16}$ " point.....	70			

FOR BODY REPAIR MECHANICS

Snap-on 2183-BR-B SET

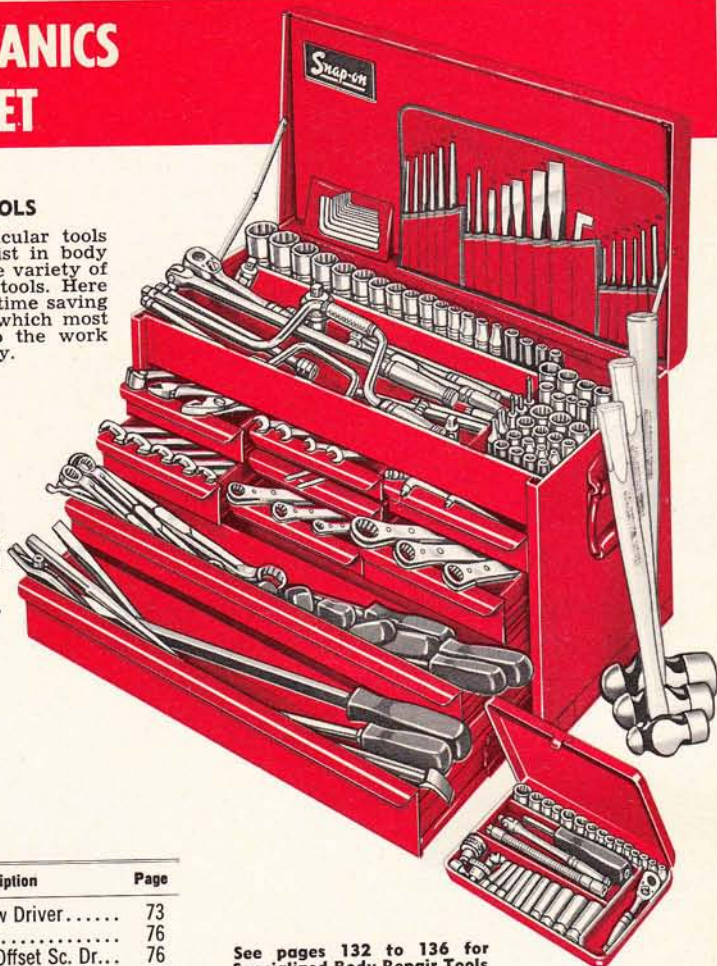
Number	Description	Page
136-TM-B	Midget Wrench Set.....	30
211-SFS-Y	Deep Hex Socket Set.....	37
219-FP	Ferret Wrench Set.....	39
325A-M	Master Wrench Set.....	44
AW-1015KC	Hex Head Wrench Set.....	81
OEXS-709	Combination Wrench Set.....	79
PPC-200-K	Chisel & Punch Set.....	71
RB-606S	Ratcheting Boxsocket Set.....	85
SSDP-50	Phillips Screw Driver Set....	73
SSDS-50	Std. Screw Driver Set.....	72
XV-605	Boxsocket Set.....	82
No. 17C	7 1/4" End Cutter.....	67
No. 47	7 1/2" Gripping Plier.....	66
No. 87	7 1/4" Diagonal Cutter.....	67
No. 1650	Pry Bar.....	71
A-159	Door Handle Tool.....	133
BF-708C	Panel Cutter.....	133
BP-216	1 lb. Ball Peen Hammer.....	76
BP-232	2 lb. Ball Peen Hammer.....	76
BP-48	3 lb. Ball Peen Hammer.....	76
FP-22A	No. 2 Phillips Bit Socket.....	37
FP-32A	No. 3 Phillips Bit Socket.....	37
FP-41B	No. 4 Phillips Bit Socket.....	37
F-29A	3/8" Clutch Bit Socket.....	37
F-30	19/64" Clutch Bit Socket.....	37
FIM-100	5/16" Self-Tap Screw Socket... 50	
FIM-120	3/8" Self-Tap Screw Socket... 50	
FIM-140	1/2" Self-Tap Screw Socket... 50	
FIM-160	5/8" Self-Tap Screw Socket... 50	
PPC-714	14" Long Taper Punch.....	71
PPC-820L	12" Long Flat Chisel.....	71
PK-121	3/8" Self-Tap Screw Socket... 50	
PK-141	1/2" Self-Tap Screw Socket... 50	
PK-161	5/8" Self-Tap Screw Socket... 50	
PK-181	3/4" Self-Tap Screw Socket... 50	

183 NEEDED TOOLS

In addition to the particular tools of his craft, the specialist in body repair work needs a wide variety of standard wrenches and tools. Here in one complete set is a time saving selection of those units which most "body" men need to do the work quickly, safely, profitably.

2183-BR-B Body Repair Set. In KRA-58B Tool Chest illustrated and described on page 8.

2183-BR Set. Above set, tools only.



See pages 132 to 136 for Specialized Body Repair Tools and equipment.

Number	Description	Page
SSD-18	18" H. D. Screw Driver.....	73
SS-5	Screw Starter.....	76
ST-012A	1 & 2 Phillips Offset Sc. Dr... 76	
ST-034A	3 & 4 Phillips Offset Sc. Dr... 76	

MECHANICS BASIC SERVICE TOOLS

Snap-on 5088A-GS-B SET

88 MOST NEEDED SERVICE TOOLS

This set is a well balanced selection of tools especially suitable for the man starting to build up his kit. It provides a basic set of Ferret 3/8" square drive and Master 1/2" square drive socket wrenches together with Boxsocket and Combination wrenches and the most essential hand tools, a set to which other units can be added as the need arises.

Stock No.	Description	See Page
219-FP	Ferret Wrench Set.....	39
325A-M	Master Wrench Set.....	44
OEX-711	Combination Wrench Set.....	79
XS-607	Boxsocket Wrench Set.....	83
No. 47	7 1/2" Gripping Plier.....	66
No. 87	7 1/4" Diagonal Cutter.....	67
No. 96	7 1/8" Needle Nose Plier.....	68
BH-92	1 lb. Plastic Tip Hammer.....	76
BP-212	12 oz. Ball Peen Hammer.....	76
CS-1	Carbon Scraper.....	107
FB-301	Spark Plug Wire Gauge.....	89
FB-326	Feeler Gauge.....	89
HB-5	Ignition Point File.....	102
HS-8	Hack Saw Frame.....	92
PPC-4	Center Punch.....	70
PPC-104	1/8" Pin Punch.....	70
PPC-106	3/16" Drift Punch.....	70
PPC-110	5/16" Drift Punch.....	70
PPC-204	1/8" Starter Punch.....	70
PPC-206	3/16" Starter Punch.....	70
PPC-210	5/16" Starter Punch.....	70
PPC-816	1/2" Blade Chisel.....	70
PPC-824	3/4" Blade Chisel.....	70
SSD-2	2 1/2" Blade Screwdriver.....	72
SSD-4	4" Blade Screwdriver.....	72
SSD-8	8" Blade Screwdriver.....	72
SSDP-42	No. 2 Phillips Screwdriver.... 73	
SSDP-64	No. 4 Phillips Screwdriver.... 73	
SSD-145	Spark Test Screwdriver.....	74
S-9704B-FU	Spark Plug Flexocket.....	105
KRA-21	Mechanikit.....	11

5088A-GS-B Mechanics Basic Tool Set. Complete with KRA-21 Mechanikit.

5088A-GS Set. Above Set tools only.

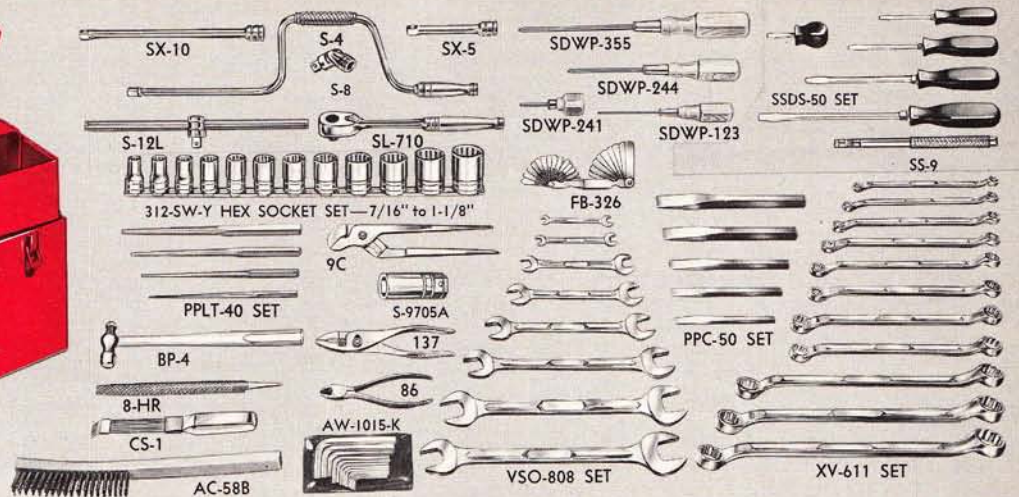
The KRA-21 Mechanikit shown here is described on page 11.

A GOOD STARTER SET FOR YOUNG MECHANICS

5080-GS-B POPULAR SERVICE SET



KRA-25
MECHANIKIT



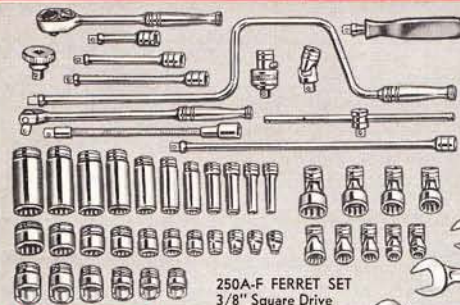
80 WRENCHES AND TOOLS NEEDED IN EVERY-DAY SERVICE WORK

5080-GS-B POPULAR SERVICE TOOL SET. Every service mechanic needs the basic tools included in this set and it provides an excellent assortment for the young man who is entering the mechanic trade. The ambitious man will set up a carefully planned program of tool purchases that will gradually build his tool kit to professional standards. All the sockets and handles in the set are half-inch square drive with a socket range of $\frac{3}{8}$ " to $1\frac{1}{4}$ ". Boxsocket sizes range from $\frac{3}{8}$ " to $1\frac{1}{4}$ " and Open Ends from $\frac{1}{4}$ " to $1\frac{1}{4}$ ". Set includes KRA-25 Mechanikit. (See page 13.)

5080-GS Set. Above set, tools only.

Stock No.	Description	See Page	Stock No.	Description	See Page
S-8	Universal Joint.....	41	86	6" Diagonal Cutter.....	67
SL-710	Ratchet Wrench.....	40	137	7½" Combination Plier.....	66
S-12L	Sliding Bar Handle.....	41	AC-58B	Wire Brush.....	107
S-4	Speeder Handle.....	41	BP-204	4 Oz. Ball Peen Hammer.....	76
SX-5	5" Extension Bar.....	41	CS-1	Carbon Scraper.....	107
SX-10	10" Extension Bar.....	41	FB-326	Feeler and Ignition Gauge.....	89
312-SW-Y	Double Hex Socket Set.....	43	S-9705A	Spark Plug Socket.....	105
AW-1015-K	Set of 13 Hex Head Wrenches.....	81	SDWP-241	Phillips Driver, #2 Bit—1½" Blade..	74
PPC-50	Set of 5 Flat Chisels.....	71	SDWP-123	Phillips Driver, #1 Bit—3¼" Blade..	74
PPLT-40	Set of 4 Long Tapered Punches.....	71	SDWP-244	Phillips Driver, #2 Bit—4" Blade....	74
VSO-808	Open End Wrench Set.....	80	SDWP-355	Phillips Driver, #3 Bit—6" Blade....	74
XV-611	Offset Boxsocket Wrench Set.....	82	SS-9	Screw Starter.....	76
8-HR	8" Half Round File.....	135	SSDS-50	Screw Driver Set.....	72
9C	8¾" Gripping Plier.....	66			

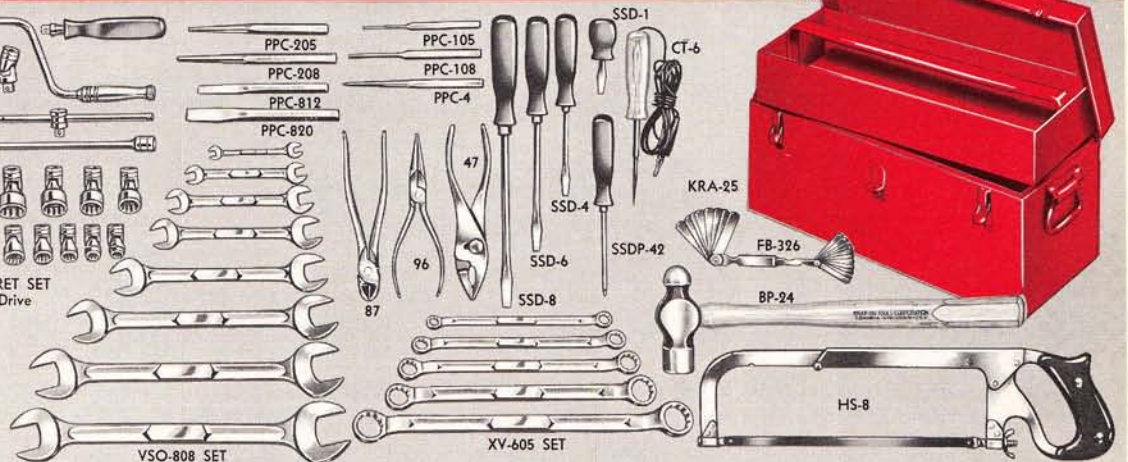
5093A-GS-B VERSATILE SERVICE TOOL SET



250A-F FERRET SET
3/8" Square Drive



2011B IT-K



93 TOOLS EVERY MECHANIC NEEDS

5093A-GS-B Versatile Service Tool Set.

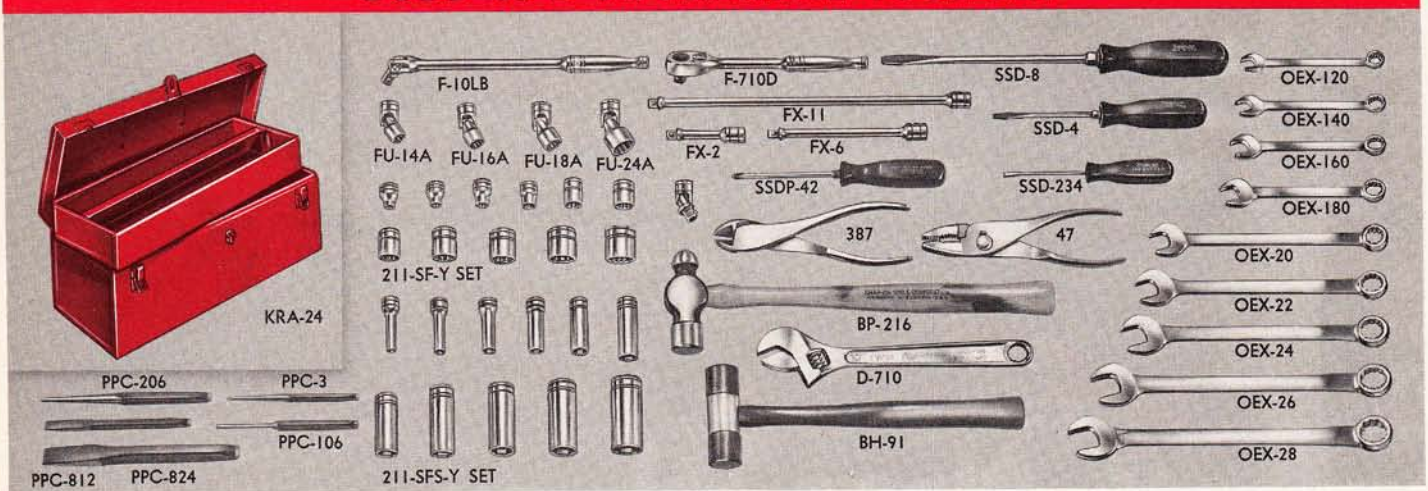
No two mechanics will choose exactly the same tool selection, but here is an assortment of the most essential tools for general service work that will give any mechanic

a sound foundation to which can be added other tools as needed. Wrench sizes range from $\frac{3}{8}$ " hex to $\frac{7}{8}$ " in sockets, Boxockets and open-ends. A versatile selection of mechanic's hand tools and special tools for valve and brake work rounds out the set. Set is complete with the KRA-25 Mechanikit described on page 13.

5093A-GS Set. Above set, tools only.

Stock No.	Description	See Page	Stock No.	Description	See Page
2011B-IT-K	Tune-up Set.....	77	PPC-105	½" Pin Punch.....	70
250A-F	Ferret Set.....	38	PPC-108	¼" Pin Punch.....	70
VSO-808	Open End Wrench Set.....	80	PPC-205	½" Starter Punch.....	70
XV-605	Boxocket Set.....	82	PPC-208	¼" Starter Punch.....	70
47	7½" Gripping Plier.....	66	PPC-812	1½" Edge Chisel.....	70
87	7¼" Diagonal Cutter.....	67	PPC-820	¾" Edge Chisel.....	70
96	7½" Needle Nose Plier....	68	SSD-1	Screwdriver, 1½" Blade.....	72
BP-224	1½ lb. Ball Peen Hammer..	76	SSD-4	Screwdriver, 4" Blade.....	72
CT-6	Circuit-Spark Tester.....	106	SSD-6	Screwdriver, 6" Blade.....	72
FB-326	Feeler Gauge.....	89	SSD-8	Screwdriver, 8" Blade.....	72
HS-8	Hack Saw Frame.....	92	SSDP-42	No. 2 Phillips Driver.....	73
PPC-4	Center Punch.....	70			

5055-GS-B APPRENTICE TOOL SET



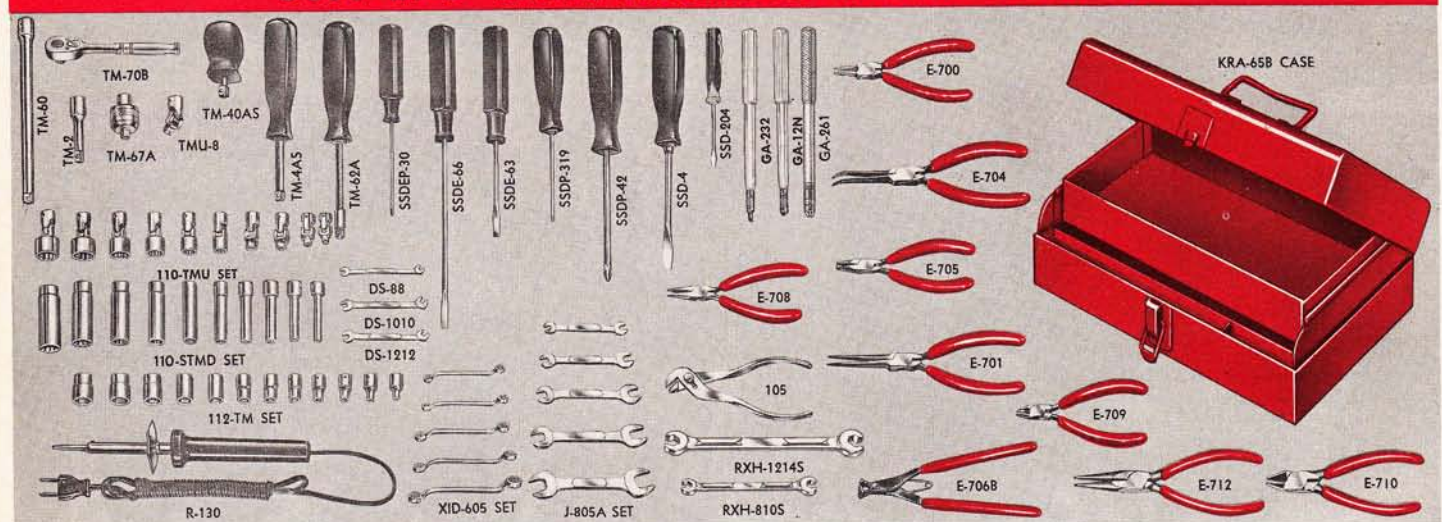
55 OF THE MOST NECESSARY TOOLS FOR THE SERVICE MECHANIC

5055-GS-B Apprentice Tool Set. A set of $\frac{3}{8}$ " square drive socket wrenches and mechanic's basic service tools, especially selected so that you can add additional units as your earnings increase until you have built up a complete automotive technician's set. This set will enable you to perform a great many service and repair operations speedily and efficiently — with a very low initial investment in fine quality tools. Complete in the KRA-24 Mechanikit. (See page 13.)

5055-GS Set. Tools only.

Stock No.	Description	See Page	Stock No.	Description	See Page	Stock No.	Description	See Page
47	7 ¹ / ₁₆ " Gripping Plier.....	66	FU-24A	¾" Flexocket.....	36	OEX-26	1 ³ / ₁₆ " Comb. Wrench.....	78
387	7 ¹ / ₁₆ " Diagonal Cutter... 67		FU-80A	Universal Joint.....	35	OEX-28	¾" Comb. Wrench.....	78
211-FS-Y	Set — 11 Hex Sockets... 37		FX-2	3" Extension.....	35	PPC-3	Center Punch.....	70
211-SFS-Y	Set — 11 Deep Sockets 37		FX-6	6" Extension.....	35	PPC-106	¾ ¹⁶ " Pin Punch.....	70
BH-91	Soft Tip Hammer, 8 oz... 76		FX-11	12" Extension.....	35	PPC-208	¾ ¹⁶ " Starter Punch.....	70
BP-216	Ball Peen Hammer, 1 lb. 76		OEX-120	¾" Comb. Wrench.....	78	PPC-812	1 ³ / ₃₂ " Edge Chisel.....	70
D-710	10" Adjustable Wrench... 77		OEX-140	7 ¹⁶ " Comb. Wrench.....	78	PPC-824	¾" Edge Chisel.....	70
F-10LB	Nut Spinner.....	35	OEX-160	¾" Comb. Wrench.....	78	SSD-4	4" Sc. Driver, ¼" Tip... 72	
F-710D	Ratchet.....	34	OEX-180	9 ¹⁶ " Comb. Wrench.....	78	SSD-8	8" Sc. Driver, ¾" Tip... 72	
FU-14A	7 ¹⁶ " Flexocket.....	36	OEX-20	¾" Comb. Wrench.....	78	SSD-234	3" Sc. Driver, ¾" Tip... 73	
FU-16A	½" Flexocket.....	36	OEX-22	1 ¹ / ₁₆ " Comb. Wrench.....	78	SSDP-42	No. 2 Phillips Driver.....	73
FU-18A	9 ¹⁶ " Flexocket.....	36	OEX-24	¾" Comb. Wrench.....	78	KRA-24	Mechanikit.....	13

5077-ET-B BASIC ASSEMBLY MIDGET TOOL SET



77 TIME SAVING TOOLS FOR MINIATURE ASSEMBLY OPERATIONS

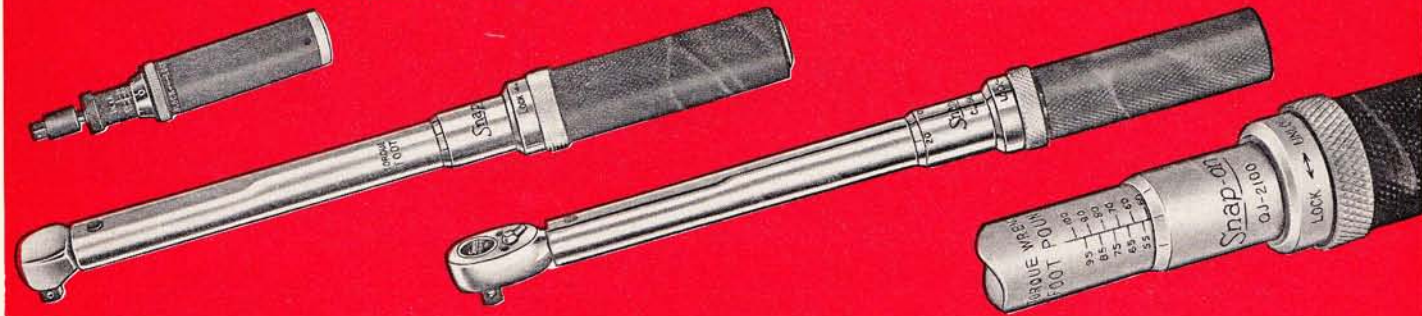
5077-ET-B Basic Assembly Midget Set. Recommended for production assembly of all types of electronic and electrical instruments and for the maintenance and adjustment of such equipment. The tiny wrenches are machined to close tolerance specifications to provide access to fastenings in closely fitted assemblies. Smooth, well-shaped and balanced handles put added efficiency into the hands of assembly line operators. Screwdrivers have tips the same width as

the diameter of the thin blades so that they can follow into screw holes. The eighteen-watt, pencil-type soldering iron maintains a constant 850 degree F. tip temperature for work on tiny assemblies or on printed circuits. Set includes the KRA-65B Tool Case described on page 11.

5077-ET Set. Above set without the tool case.

Stock No.	Description	See Page	Stock No.	Description	See Page	Stock No.	Description	See Page
105	5" Gripping Plier, adj. slip joint.....	66	E-710	$\frac{5}{16}$ " Diagonal Cutter Plier.....	65	SSDEP-30	Phillips Driver, No. 0 bit, 3" blade.....	73
110-STMD	Set — Ten Deep Hex Sockets.....	33	E-712	6" Needle Nose Plier.....	65	SSDP-42	Phillips Driver, No. 2 bit, 4" blade.....	73
110-TMU	Set — Ten Hex Flexockets.....	33	GA-12N	Screw Starter.....	76	SSDP-319	Phillips Driver, No. 1 bit, 3 1/4" blade.....	73
112-TM	Set — Twelve Hex Sockets.....	33	GA-233	Screw Starter.....	76	TM-2	2" Extension Bar.....	32
DS-88	$\frac{1}{4}$ " Open End Wrench.....	77	GA-261	Phillips Screw Starter.....	76	TM-4AS	Plastic Grip Handle, 2" shank.....	32
DS-1010	$\frac{5}{32}$ " Open End Wrench.....	77	J-805A	Set — Five Short Open End Wrenches.....	77	TM-40AS	Plastic Grip Handle, 3/4" shank.....	32
DS-1212	$\frac{3}{16}$ " Open End Wrench.....	77	R-130	Pencil-Type Soldering Iron.....	64	TM-60	6" Extension Bar.....	32
E-700	Wire Looper Plier.....	65	RXH-8105	$\frac{1}{4}$ " x $\frac{5}{16}$ " Flare Nut Wrench.....	87	TM-62A	Flexible Drive Handle.....	32
E-701	6 1/2" Bent Needle Nose Plier.....	65	RXH-1214S	$\frac{3}{8}$ " x $\frac{7}{16}$ " Flare Nut Wrench.....	87	TM-67A	Ratchet Adaptor.....	32
E-704	6 1/2" Bent Needle Nose Plier.....	65	SSD-4	Screw Driver — 1/4" tip — 4" blade.....	72	TM-70B	Ratchet Wrench.....	32
E-705	4 1/2" End Cutter, 1/2" wide tip.....	65	SSD-204	Screw Driver — 1/4" tip — 2" blade.....	74	TM-70S	Ratchet Spinner.....	32
E-706B	6 1/2" Flush Cutting End Nipper.....	65	SSDE-83	Screw Driver — 3/16" tip — 3" blade.....	74	TMU-8	Universal Joint.....	32
E-708	4 1/2" Needle Nose Plier.....	65	SSDE-66	Screw Driver — 1/16" tip — 6" blade.....	74	XID-605	Set — 5 Midget Boxockets.....	83
E-709	4 1/4" Flush Cutter Plier.....	65						

Snap-on CLICK-TYPE TORQUE WRENCHES



Snap-on click-type torque wrenches feature micrometer type adjustment to any torque value within the capacity range of the wrench. Torque is indicated mechanically by the wrench with an audible sound or "click" and a sudden release followed by several degrees of free movement. No dial reading is necessary because the tool is pre-set at a given torque and signals the operator when the selected torque is reached. This is especially important in areas where a dial cannot be seen. Ruggedly built, they are also light in weight and well balanced. The torque control is built into the knurled aluminum handle with the inner mechanism sealed for protection. Compact heads permit use in narrow working quarters. Shanks and heads are chrome plated. Re-setting the wrench is necessary only when a different torque value is required.

Sq. Dr.	Fixed Head Model	Ratchet Head Model	Screw- Driver Model	CAPACITY		Divisions	Approx. Length
				Min.	Max.		
▲ 1/4"	—	—	QJS-13	2 in. lbs.	30 in. lbs.	1/2 lb.	5 1/2"
▲ 3/8"	QJ-117	QJR-117	—	5 in. lbs.	200 in. lbs.	10 oz.	8 1/2"
▲ 1/2"	—	QJMR-12	—	5 cm. kgs.	200 cm. kgs.	1 cm. kgs.	9 1/4"
▲ 3/4"	QJ-284	QJR-284	—	50 in. lbs.	1000 in. lbs.	5 lbs.	14"
▲ 1"	QJ-2100	QJR-2100	—	5 ft. lbs.	100 ft. lbs.	1/2 lb.	14 1/2"
▲ 1 1/4"	—	QJMR-210	—	50 cm. kgs.	1000 cm. kgs.	5 cm. kgs.	14 3/4"
▲ 1 1/2"	QJ-3209	QJR-3209	—	100 in. lbs.	2500 in. lbs.	10 lbs.	20"
▲ 1 3/4"	QJ-3200	—	—	10 ft. lbs.	200 ft. lbs.	1 lb.	20"
▲ 2"	—	QJR-3200	—	10 ft. lbs.	200 ft. lbs.	1 lb.	20 3/4"
▲ 2 1/4"	—	QJMR-330	—	1 m. kg.	30 m. kgs.	1 m. kgs.	20 3/4"
▲ 2 1/2"	QJ-4600	—	—	100 ft. lbs.	600 ft. lbs.	2 1/2 lbs.	39 1/2"
▲ 3"	QJM-480	—	—	10 m. kgs.	80 m. kgs.	1/2 lb.	39 1/2"

Snap-on TORQUE DRIVERS—1/4" Square Drive

SNAP-ON Torque Drivers give you precise control where screws or nuts must be torqued to exact tension on any precision assembly work. The dial may be adjusted right or left for convenient use and the driver can be used either by setting pointer at desired torque and tightening fastener until pointer reaches zero, or by setting

pointer on zero and tightening until pointer reaches desired torque reading. Each Torque Driver has a 1/4" square drive and is available in standard (8 1/2" length) or stubby (4 7/8" length) types. Handle grips are tough black plastic—comfortable to hold and use.



Standard Model	Follow-Up Pointer Model	Stubby Standard Model	Stubby Follow-Up Pointer Model	Dial Calibration		Models with English and Metric Combination Dials				
				Maximum Range	Divisions	Standard Model	Follow-Up Model	Stubby Standard Model	Stubby Follow-Up Model	Maximum Range
TQS-004	TQS-004-FU	TQSS-004	TQSS-004-FU	8 in. oz.	1/4 in. oz.	—	—	—	—	—
TQS-008	TQS-008-FU	TQSS-008	TQSS-008-FU	16 in. oz.	1/2 in. oz.	—	—	—	—	—
TQS-012	TQS-012-FU	TQSS-012	TQSS-012-FU	24 in. oz.	3/4 in. oz.	—	—	—	—	—
TQS-025	TQS-025-FU	TQSS-025	TQSS-025-FU	48 in. oz.	1 in. oz.	—	—	—	—	—
TQS-050	TQS-050-FU	TQSS-050	TQSS-050-FU	96 in. oz.	2 in. oz.	—	—	—	—	—
TQS-1	TQS-1-FU	TQSS-1	TQSS-1-FU	192 in. oz.	4 in. oz.	TQSC-1	TQSC-1-FU	TQSCS-1	TQSCS-1-FU	15 cm. kg.
TQS-2	TQS-2-FU	TQSS-2	TQSS-2-FU	384 in. oz.	8 in. oz.	—	—	—	—	—
TQS-2.5	TQS-2.5-FU	TQSS-2.5	TQSS-2.5-FU	480 in. oz.	12 in. oz.	TQSC-2.5	TQSC-2.5-FU	TQSCS-2.5	TQSCS-2.5-FU	35 cm. kg.
TQS-4	TQS-4-FU	TQSS-4	TQSS-4-FU	50 in. lbs.	2 in. lbs.	TQSC-4	TQSC-4-FU	TQSCS-4	TQSCS-4-FU	50 cm. kg.
TQS-6	TQS-6-FU	TQSS-6	TQSS-6-FU	75 in. lbs.	1 in. lbs.	TQSC-6	TQSC-6-FU	TQSCS-6	TQSCS-6-FU	90 cm. kg.

BENCH MODEL TORQUE WRENCH TESTER

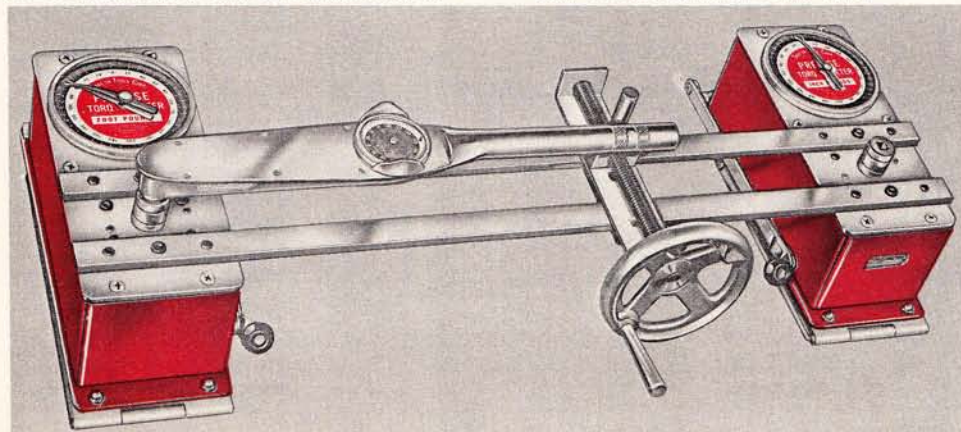
The TQTP-216 BENCH MODEL TORQUE WRENCH TESTER measures the accuracy of standard hand model Torquemeters and most torque wrenches. It consists of two individual testers, one measuring 0-200 inch pounds and the other indicating 0-200 foot pounds. Both dial readings are accurate within 1% over the entire dial range. The 4 1/2" diameter dials are calibrated in one pound increments and feature follow-up pointers. The loader device slides to accommo-

date torque instruments of various sizes, 1/2", 3/4", and 1" adaptors are included. Attached to the KRA-450B Roll Cab (not included), the tester can be easily moved to any place torque checks are required.

TQTP-216-B Tester on KRA-450B Roll-Cab.

TQTP-16 200 in. lb. Test Unit Only.

TQTP-200 200 ft. lb. Test Unit only.



Specifications: Tester Housing, Length: 11", Width: 5", Depth: 5 1/4". Net Weight: 46 lbs., 2 oz. KRA-450B Roll-Cab, page 155.

Snap-on[®] TORQOMETERS ARE

Dependable...Sturdy...Accurate

INDICATOR LIGHT IS AVAILABLE ON MANY MODELS AS SHOWN ABOVE



**NEW
PRECISE
1%
MODELS**

FOLLOW UP
POINTER MODELS

WHEN PRESSURE IS RELEASED MASTER NEEDLE RETURNS TO ZERO WHILE THE POINTER NEEDLE REMAINS AT THE READING ATTAINED.

THE IMPORTANCE OF USING A TORQOMETER
















It is recognized throughout industry that the only correct way to tighten threaded fasteners is by applying an exact specified torque. It is physically impossible for any mechanic to tighten a series of bolts to an equalized predetermined tension with ordinary wrenches. This makes

the man using a SNAP-ON Torqometer an important factor in the proper assembly of modern engines and machinery and in its safe and efficient operation. Effective length is clearly marked on all handles to facilitate easy use of adaptors.

▲ MODELS AVAILABLE WITH ENGLISH CALIBRATION DIALS

Model Type	PRECISE 1% MODELS			Capacity & Square Drive				STANDARD 2% MODELS		
	Basic Model	Follow-up Model	Indicator Model	Length	Maximum Range	Dial Divisions	Square Drive	Basic Model	Follow-up Model	Indicator Model
A	TEP-1	TEP-1FU	—	10"	15 in. lbs.	¼ in. lbs.	¼"	TE-1	TE-1FU	—
A	TEP-3	TEP-3FU	—	10"	30 in. lbs.	½ in. lbs.	¼"	TE-3	TE-3FU	—
A	TEP-6	TEP-6FU	—	10"	75 in. lbs.	1 in. lbs.	¼"	TE-6	TE-6FU	—
A	TEP-12	TEP-12FU	TEP-12L	10"	150 in. lbs.	2½ in. lbs.	¾"	TE-12	TE-12FU	TE-12L
A	TEP-25	TEP-25FU	TEP-25L	10"	300 in. lbs.	5 in. lbs.	¾"	TE-25	TE-25FU	TE-25L
A	TEP-50	TEP-50FU	TEP-50L	12½"	600 in. lbs.	10 in. lbs.	¾"	TE-50	TE-50FU	TE-50L
A	TEP-51	TEP-51FU	TEP-51L	12½"	600 in. lbs.	10 in. lbs.	½"	TE-51	TE-51FU	TE-51L
A	TEP-12F	TEP-12F-FU	TEP-12F-L	10"	12 ft. lbs.	½ ft. lbs.	¾"	TE-12F	TE-12F-FU	TE-12F-L
A	TEP-50F	TEP-50F-FU	TEP-50F-L	12½"	50 ft. lbs.	1 ft. lbs.	¾"	TE-50F	TE-50F-FU	TE-50F-L
A	TEP-51F	TEP-51F-FU	TEP-51F-L	12½"	50 ft. lbs.	1 ft. lbs.	½"	TE-51F	TE-51F-FU	TE-51F-L
A	TEP-100	TEP-100FU	TEP-100L	18¾"	100 ft. lbs.	1 ft. lbs.	½"	TE-100	TE-100FU	TE-100L
A	TEP-175	TEP-175FU	TEP-175L	18¾"	175 ft. lbs.	2½ ft. lbs.	½"	TE-175	TE-175FU	TE-175L
A	TEP-250	TEP-250FU	TEP-250L	18¾"	250 ft. lbs.	5 ft. lbs.	½"	TE-250	TE-250FU	TE-250L
A	TEP-352	TEP-352FU	TEP-352L	29½"	350 ft. lbs.	5 ft. lbs.	¾"	TE-352	TE-352FU	TE-352L
A	TEP-602	TEP-602FU	TEP-602L	42"	600 ft. lbs.	10 ft. lbs.	¾"	TE-602	TE-602FU	TE-602L

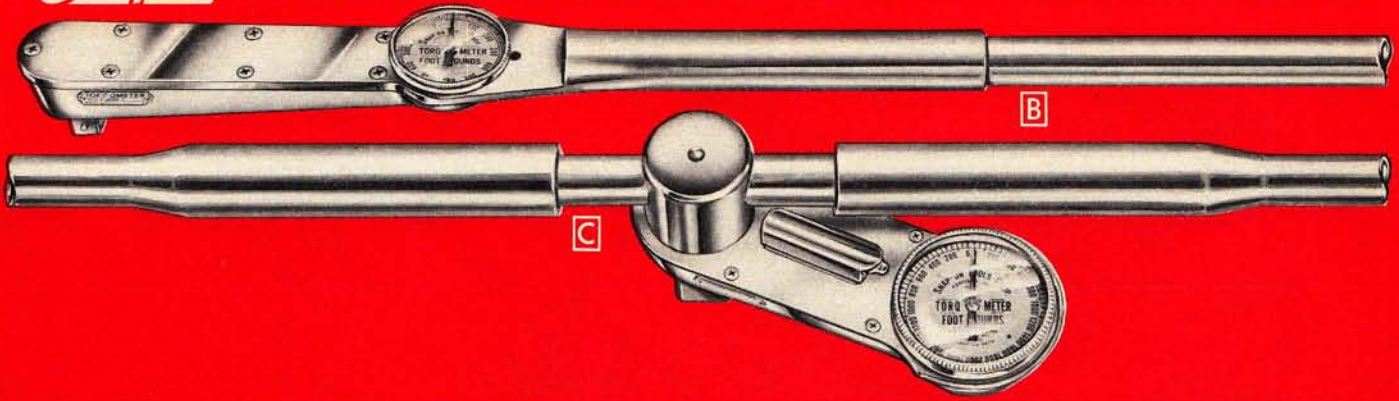
THE 800 FT. LB. THRU 4000 FT. LB. WRENCHES ARE GUARANTEED ACCURATE WITHIN 3% OF DIAL READING

Model Type	STANDARD MODELS			Capacity & Square Drive				"T" HANDLE MODELS			
	Basic Model	Follow-up Model	Indicator Model	Length	Maximum Range	Dial Divisions	Square Drive	Model Type	Follow-up Model	Indicator Model	
	TQ-803	TQ-803FU	TQ-803L	* 66½"	800 ft. lbs.	20 ft. lbs.	1"		—	TQ-803T-FU	TQ-803T-L
	TQ-1003A	TQ-1003FU	TQ-1003A-L	* 66½"	1000 ft. lbs.	20 ft. lbs.	1"		—	TQ-1003T-FU	TQ-1003T-L
	—	TQ-1503FU	TQ-1503L	* 80"	1500 ft. lbs.	25 ft. lbs.	1"		—	TQ-1503T-FU	TQ-1503T-L
	—	TQ-2003FU	TQ-2003AL	* 80"	2000 ft. lbs.	50 ft. lbs.	1"		—	TQ-2003T-FU	TQ-2003T-L
	—	TQ-2005FU	TQ-2005L	* 80"	2000 ft. lbs.	50 ft. lbs.	1½"		—	TQ-2005T-FU	TQ-2005T-L
	—	—	TQ-3005L	*140"	3000 ft. lbs.	50 ft. lbs.	1½"		—	TQ-3005T-FU	TQ-3005T-L
	—	—	TQ-3335L	*140"	4000 in. lbs.	500 in. lbs.	1½"		—	TQ-3335T-FU	TQ-3335T-L
—	—	—	—	—	4000 ft. lbs.	50 ft. lbs.	1½"		—	TQ-4005T-FU	TQ-4005T-L

*Includes removable handles

▲ Federal Specs: GGG-W-686B, Type 2, styles A and C applies to all items listed above.

Snap-on TORQOMETERS®... STURDY... DEPENDABLE... ACCURATE



SUPERIOR FEATURES MAKE **Snap-on** TORQOMETERS YOUR BEST TORQUE WRENCH BUY

- **FOR RIGHT, AND LEFT HAND THREADS** — Dial pointer works both ways on the dial.
- **MOVABLE POINTER AND DIAL** — The position of the bolt or stud to be tensioned sometimes makes it difficult for the operator to see the pointer. To remedy this condition, the "Torqometer" is equipped with a movable pointer and dial which may be pre-set to the most easily read position. All models furnished with protective dial guards.
- **BLACK CALIBRATIONS** — Against a white dial background make the "Torqometer" easy to read.
- **EXTREME SENSITIVENESS** — The applied torque is amplified approximately 500 times on the dial for hairline accuracy in torque measurement.
- **BUILT-IN SAFETY FACTORS** — Constructed to withstand an overload beyond dial capacity of each model far greater than the average mechanic is apt to apply. A slip clutch protects pointer mechanism.
- **CONSISTENT READINGS** — The accuracy of the "Torqometer" is not affected by the way it is held. Pull on the end of the handle or close to the dial and the reading remains the same. This is not true of all tension wrenches.
- **HAND HOLD POSITION NOT IMPORTANT** — You can apply pressure to a Snap-on TORQOMETER at any position on the tool and still achieve a correct reading.

• **TORQUE MEASURING PRINCIPLE** — SNAP-ON "Torqometers" determine bolt tension by measuring the amount of twist (torque) developed in a specially heat treated alloy steel torq member within the instrument as bolt turning pressure is applied.

• **EXTREME ACCURACY** — All models are calibrated on equipment accurate within $\frac{1}{10}$ of 1% — traceable to the National Bureau of Standards.

• **FRICTION-FREE OPERATION** — Floating connecting beam between torque plug and dial mechanism has no bearing points and consequently no friction drag. This construction together with the watch-like precision of the dial mechanism renders the "Torqometer" practically "friction-free."

• **LIGHT INDICATOR MODELS** — For use in locations where it is difficult to read the dials. Light operates when pre-set dial reading is reached.

• **STREAMLINED LIGHT WEIGHT** — Made of durable, extra-strong aluminum alloy, the well balanced case protects the vital parts of the instrument and still provides a tool that is unbeatable for ease and comfort in operation. Slender design permits use of the tool in very close quarters.

U.S. Patent Numbers 2,715,333, 2,792,734, 3,069,903 and other patents pending. Canadian Patent Number 463,713. Also patented in other countries.

▲ MODELS AVAILABLE WITH COMBINATION ENGLISH AND METRIC CALIBRATED DIALS

Model Type	PRECISE 1% MODELS			Capacity and Square Drive						STANDARD 2% MODELS		
	Basic Model	Follow-up Model	Indicator Model	Length	Range	METRIC Divisions	Range	ENGLISH Divisions	Square Drive	Basic Model	Follow-up Model	Indicator Model
A	TEPC-1	TEPC-1FU	—	10"	15 cm. kgs.	1 cm. kgs.	15 in. lbs.	1 in. lb.	$\frac{1}{4}$ "	TEC-1	TEC-1FU	—
A	TEPC-3	TEPC-3FU	—	10"	35 cm. kgs.	1 cm. kgs.	30 in. lbs.	1 in. lb.	$\frac{1}{4}$ "	TEC-3	TEC-3FU	—
A	TEPC-6	TEPC-6FU	—	10"	90 cm. kgs.	3 cm. kgs.	75 in. lbs.	5 in. lbs.	$\frac{1}{4}$ "	TEC-6	TEC-6FU	—
A	TEPC-12	TEPC-12FU	TEPC-12L	10"	175 cm. kgs.	6 cm. kgs.	150 in. lbs.	5 in. lbs.	$\frac{3}{8}$ "	TEC-12	TEC-12FU	TEC-12L
A	TEPC-25	TEPC-25FU	TEPC-25L	10"	300 cm. kgs.	10 cm. kgs.	25 ft. lbs.	1 ft. lb.	$\frac{3}{8}$ "	TEC-25	TEC-25FU	TEC-25L
A	TEPC-50	TEPC-50FU	TEPC-50L	12 $\frac{1}{2}$ "	7 m. kgs.	20 cm. kgs.	600 in. lbs.	20 in. lbs.	$\frac{3}{8}$ "	TEC-50	TEC-50FU	TEC-50L
A	TEPC-51	TEPC-51FU	TEPC-51L	12 $\frac{1}{2}$ "	7 m. kgs.	20 cm. kgs.	600 in. lbs.	20 in. lbs.	$\frac{1}{2}$ "	TEC-51	TEC-51FU	TEC-51L
A	TEPC-100	TEPC-100FU	TEPC-100L	18 $\frac{3}{4}$ "	15 m. kgs.	$\frac{1}{2}$ m. kgs.	100 ft. lbs.	1 ft. lb.	$\frac{1}{2}$ "	TEC-100	TEC-100FU	TEC-100L
A	TEPC-175	TEPC-175FU	TEPC-175L	18 $\frac{3}{4}$ "	24 m. kgs.	1 m. kgs.	175 ft. lbs.	5 ft. lbs.	$\frac{1}{2}$ "	TEC-175	TEC-175FU	TEC-175L
A	TEPC-250	TEPC-250FU	TEPC-250L	18 $\frac{3}{4}$ "	35 m. kgs.	1 m. kgs.	250 ft. lbs.	10 ft. lbs.	$\frac{1}{2}$ "	TEC-250	TEC-250FU	TEC-250L
A	TEPC-352	TEPC-352FU	TEPC-352L	29 $\frac{1}{2}$ "	50 m. kgs.	2 m. kgs.	360 ft. lbs.	15 ft. lbs.	$\frac{3}{4}$ "	TEC-352	TEC-352FU	TEC-352L
A	TEPC-602	TEPC-602FU	TEPC-602L	42"	80 m. kgs.	2 m. kgs.	600 ft. lbs.	20 ft. lbs.	$\frac{3}{4}$ "	TEC-602	TEC-602FU	TEC-602L

THE 110 M. KGS. THRU 550 M. KGS. WRENCHES ARE GUARANTEED WITHIN 3% OF DIAL READING

Model Type	STANDARD MODELS			Capacity and Square Drive						"T" HANDLE MODELS			
	Basic Model	Follow-up Model	Indicator Model	METRIC			ENGLISH		Square Drive	Model Type	Basic Model	Follow-up Model	Indicator Model
				Length	Range	Divisions	Range	Divisions					
B	TQC-803	TQC-803-FU	TQC-803L	66½"	110 m. kgs.	2 m. kgs.	800 ft. lbs.	25 ft. lbs.	1"	C	—	TQC-803T-FU	TQC-803T-L
B	TQC-1003A	TQC-1003-FU	TQC-1003AL	66½"	130 m. kgs.	2 m. kgs.	1000 ft. lbs.	20 ft. lbs.	1"	C	—	TQC-1003T-FU	TQC-1003T-L
B	—	TQC-1503-FU	TQC-1503AL	79"	200 m. kgs.	10 m. kgs.	1500 ft. lbs.	50 ft. lbs.	1"	C	—	TQC-1503T-FU	TQC-1503T-L
B	—	TQC-2003-FU	TQC-2003L	79"	280 m. kgs.	10 m. kgs.	2000 ft. lbs.	100 ft. lbs.	1"	C	—	TQC-2003T-FU	TQC-2003T-L
B	—	TQC-2005-FU	TQC-2005L	79"	280 m. kgs.	10 m. kgs.	2000 ft. lbs.	100 ft. lbs.	1½"	C	—	TQC-2005T-FU	TQC-2005T-L
B	—	—	TQC-3005L	138"	400 m. kgs.	10 m. kgs.	3000 ft. lbs.	100 ft. lbs.	1½"	C	—	TQC-3005T-FU	TQC-3005T-L
—	—	—	—	—	550 m. kgs.	10 m. kgs.	4000 ft. lbs.	100 ft. lbs.	1½"	C	—	TQC-4005T-FU	TQC-4005T-L

▲ Federal Specs: GGG-W-686B, type 2, style A and C, applies to items indicated by symbol ▲.

Snap-on IM-5 AIR IMPACT WRENCH



IM-5 POWER AND DEPENDABILITY

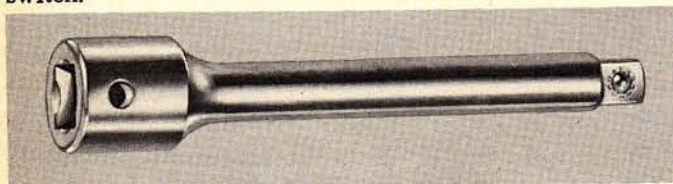
IM-5 Air Impact Wrench. Designed for the professional mechanic, built for continuous, long, hard service. Shown above and described at right.

(A) IM-5012 Impact Wrench Set. A versatile combination of the new IM-5 Air Impact Wrench and eleven "Flank Drive" Impact Sockets — $\frac{3}{8}$ " to 1". The set comes neatly packaged in a sturdy plastic carrying case.

(B) IM-5023 Impact Wrench Set. Above set with eleven additional Deep Bolt Clearance Sockets in the same size range as those included in the IM-5012 set. Comes packaged in plastic carrying case.

PB-2 Plastic Case. A bright red plastic carrying case, equipped with a convenient carrying handle. A molded section in the case holds the wrench and sockets firmly in place. There is also a recess for the set of eleven deep sockets.

GA-301 Leather Boot for IM-5 Wrench. Covers the body of the tool and protects it against scratches. The handle is left uncovered and openings allow the rubber bumpers to extend out. A cut-out permits easy operation of the forward-reverse switch.



IMPACT WRENCH ADAPTORS

AX-4 Adaptor. Delivers maximum turning power for quick removal and replacement of fasteners in confined areas. Has a $\frac{1}{2}$ " square female drive portion and $\frac{3}{8}$ " male drive, which allows $\frac{3}{8}$ " drive impact sockets to be used on $\frac{1}{2}$ " drive impact wrenches. Designed for use on automatic transmissions where limited space prevents use of bulkier $\frac{1}{2}$ " drive sockets. Caution: This extension was not designed for high torque applications. Unit is 5" long and chrome plated.

AX-12 Adaptor. Same as above, 12" long.

AX-24 Adaptor. Same as above, 24" long.

FLUSHING SOLVENT

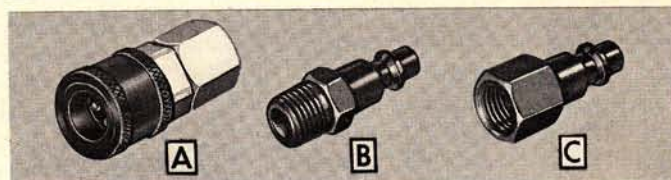
AWS-16 One Pint Can of Flushing Solvent. Not illustrated. This flushing oil should not be used as a lubricating oil. It is used on air impact wrenches to flush dirt, sludge, etc., out through the exhaust. Simply apply three or four squirts of the solvent into the air inlet of the wrench each day before using it. Special plastic spout on can prevents spilling the solvent. Do not flush the tool around fires. Be sure the tool exhaust is pointed away from you or others.

PROFESSIONAL QUALITY FEATURES

Completely new, rotary action motor ■ Rugged impact mechanism ■ Factory lubricated and sealed ■ New regulator type trigger ■ Torque is continuously adjustable from zero to peak power ■ Highly polished aluminum die cast housing ■ Replaceable bumper guards protect Epoxy coated housing ■ Recommended air pressure is 90 to 125 psi ■ Recommended hose I.D. $\frac{3}{16}$ " or larger ■ Forward reverse switch controls direction of anvil rotation ■ Large, comfortable-to-grip, angled handle ■ Lock ring on $\frac{1}{2}$ " square drive to secure impact sockets ■ Modern design.

INDUSTRIAL HEXAGON SOCKETS

STANDARD			BOLT CLEARANCE		
Size	Stock Number	Dr. Size	Size	Stock Number	Dr. Size
$\frac{3}{8}$ "	IM-120	$\frac{1}{2}$ "	$\frac{3}{8}$ "	SIM-120	$\frac{1}{2}$ "
$\frac{7}{16}$ "	IM-140	$\frac{1}{2}$ "	$\frac{7}{16}$ "	SIM-140	$\frac{1}{2}$ "
$\frac{1}{2}$ "	IM-160	$\frac{1}{2}$ "	$\frac{1}{2}$ "	SIM-160	$\frac{1}{2}$ "
$\frac{9}{16}$ "	IM-180	$\frac{1}{2}$ "	$\frac{9}{16}$ "	SIM-180	$\frac{1}{2}$ "
$\frac{5}{8}$ "	IM-200	$\frac{1}{2}$ "	$\frac{5}{8}$ "	SIM-200	$\frac{1}{2}$ "
$\frac{11}{16}$ "	IM-220	$\frac{1}{2}$ "	$\frac{11}{16}$ "	SIM-220	$\frac{1}{2}$ "
$\frac{3}{4}$ "	IM-240	$\frac{1}{2}$ "	$\frac{3}{4}$ "	SIM-240	$\frac{1}{2}$ "
$\frac{13}{16}$ "	IM-260	$\frac{1}{2}$ "	$\frac{13}{16}$ "	SIM-260	$\frac{1}{2}$ "
$\frac{7}{8}$ "	IM-280	$\frac{1}{2}$ "	$\frac{7}{8}$ "	SIM-280	$\frac{1}{2}$ "
$\frac{15}{16}$ "	IM-300	$\frac{1}{2}$ "	$\frac{15}{16}$ "	SIM-300	$\frac{1}{2}$ "
1"	IM-320	$\frac{1}{2}$ "	1"	SIM-320	$\frac{1}{2}$ "



AIR LINE COUPLERS

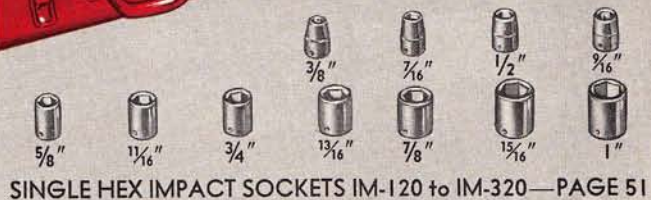
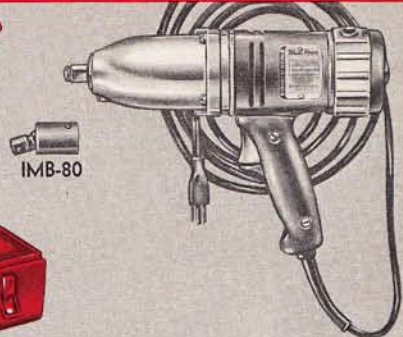
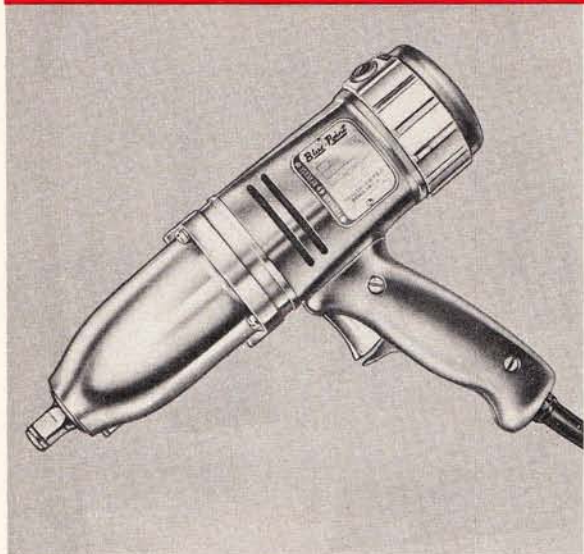
(A) GA-308 Quick Coupler. Provides a very fast and easy method of attaching and removing air tools from air lines. The spring loaded quick coupler body end accepts SNAP-ON coupler adaptors which simply push into the coupler body for fast connection. The opposite end of the coupler has a $\frac{1}{4}$ "-18 N.P.T. female thread for attachment to either an air line or to a whip hose. A $\frac{3}{4}$ " single hex portion at the threaded end of the unit permits use of a wrench to tighten the quick coupler securely to an air line.

(B) GA-309 Male Coupler Adaptor. Enables fast attachment and removal of a pneumatic tool from a hose or air line. It has a $\frac{1}{4}$ "-18 N.P.T. male threaded end for attachment to a pneumatic tool. The other end is specially shaped to securely join with the quick coupler.

(C) GA-310 Female Coupler Adaptor. Enables fast attachment and removal of a pneumatic tool and the hose from an air line. It has a $\frac{1}{4}$ "-18 N.P.T. female threaded end for attachment to an air line. The other end is specially shaped to fit the quick coupler.

1/2" SQUARE DRIVE ELECTRIC IMPACT WRENCH

NO DANGEROUS TORQUE—SO SAFE YOU CAN BOLT OR DRILL WITH ONE HAND



SINGLE HEX IMPACT SOCKETS IM-120 to IM-320—PAGE 51

ALL MODELS HAVE 1/2" SQUARE DRIVE

With Friction Ring
EWF-515 115 Volt
EWF-520 220 Volt

With Lock Button
EWL-515 115 Volt
EWL-520 220 Volt

Heavy duty impacting mechanism accumulates energy and releases it in powerful, instantaneous blows for utmost driving torque and full-impact force. Smooth, constant reciprocating impactor action and efficiency is maintained indefinitely regardless of length of service. Anvil is equipped with roller bearings for long bearing life.

Special heat treated heavy-duty gears provide efficient speed reduction in compact housing.

Armature construction and spiral leads are designed to absorb vibration and give trouble-free service.

Positive Control Reversing Switch Ring is grooved to provide a sure grip. Trigger Switch is heavy-duty "Instant Release" 2-pole type.

Centrifugal fan and end cap air intake slots provide extremely efficient ventilation and cool running.

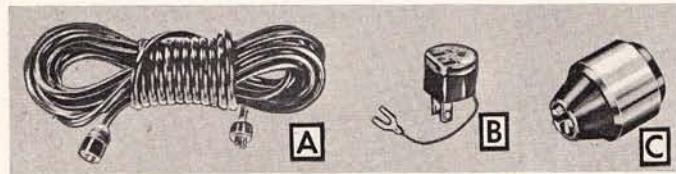
SPECIFICATIONS

MOTOR: Universal-AC-DC 25/60 Cycles, Single Phase.

VOLTAGES: 115 Volt, 220 Volt.

AMPERES: Conservative rating 4 amps.

SPEED: 1800 R.P.M. No Load — Forward or Reverse.



ACCESSORY ITEMS

(A) EC-629 Extension Cord. 50-foot flexible vinyl covered extension cord. The vinyl construction of this extension makes it impervious to grease and oil. It is also fire, acid and abrasion resistant. This cord has 3 prong male and female grounding type rubber connectors.

(B) EC-3, 3-Prong Plug Outlet Adaptor. One end plugs into standard 2-prong outlet — the other receives 3-prong plug now used on almost all electric hand tools. Adaptor ground wire is screwed onto outlet. Molded rubber construction.

(C) EW-156 Keyless Drill Chuck. For use on 1/2" square drive impact wrenches. The chuck has three spring-loaded jaws which self-center automatically onto a drill bit. Simply rotate chuck housing to tighten jaws. This chuck adapts 1/2" impact wrenches to round shank drill bits 1/8" to 1/2" in diameter.

IMPACTS: 1800 per minute.

LENGTH: 10 7/8" overall.

WIDTH: 3" side to side.

CLEARANCE: Top of wrench to center of spindle is only 1 1/2". The wrench can be used in very close places.

BALANCE: The length and weight are well balanced on the handle making the wrench easy to use without tiring the arm and hand.

CORD: 10 feet of Heavy Duty Neoprene Sheathed with molded strain reliever.

WEIGHT: Net weight with cord, 7 lbs., 5 ozs.

IMPACT WRENCH SETS

EW-5132-B Impact Wrench Set. Contains complete ranges of standard and bolt clearance sockets, the EWF-515 Impact Wrench (115 volt), eleven single hex impact sockets 3/8" to 1", and IMB-80 Universal Joint. In KRD-162 metal case.

EW-5232-B Set. Above set but with EWF-520 Wrench (220 volt).

KRD-162 Metal Case. Sturdy, spot welded, heavy gauge steel construction. Padded cradle holds the wrench securely. Hinged lids prevent sockets from spilling when case is lifted. Has two clasp fasteners, large metal handle and red enamel finish. Size 15 1/4" x 13 1/2" x 4 3/4".

1/8" SQUARE DRIVE SOCKET SET



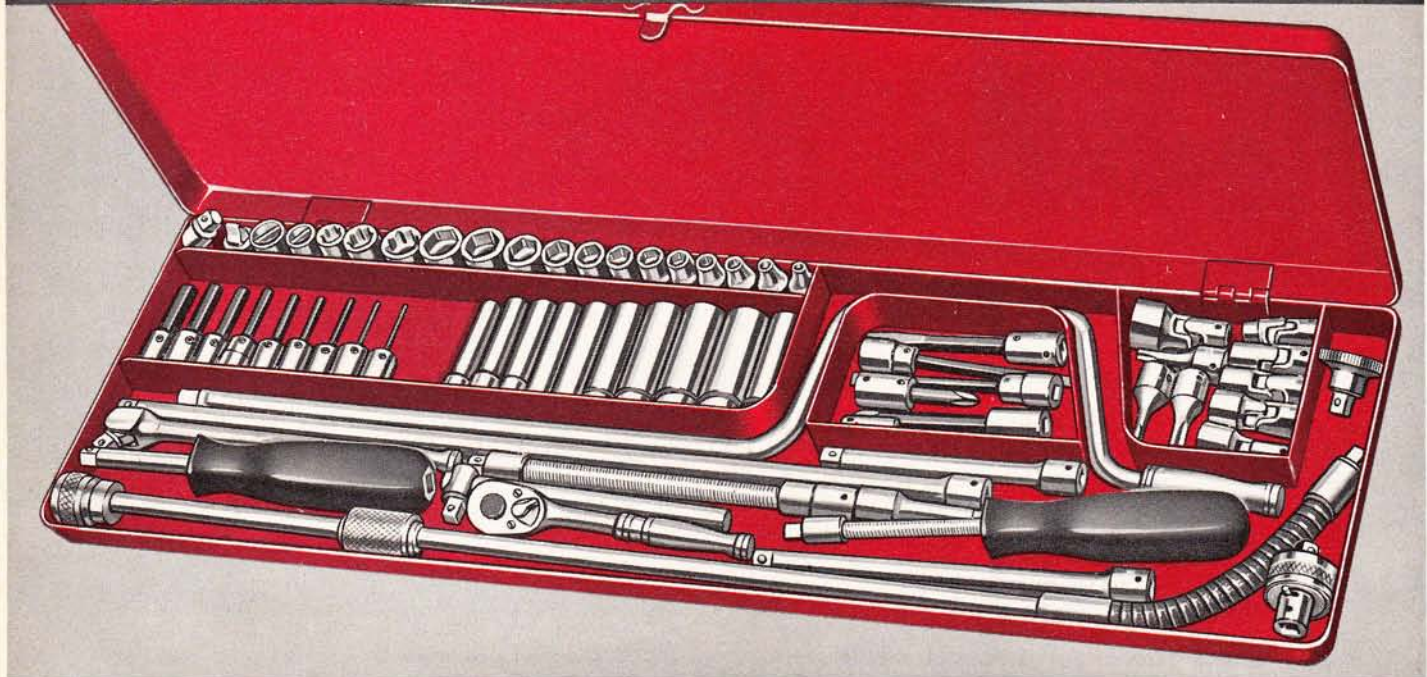
(A) 1605-T 1/8" Square Drive Socket Set. Includes a driver, 4 sockets 3/32", 1/8", 5/32", 3/16" and is packaged in a handy plastic carrying case. This set has proved very useful due to the fact there is an ever-increasing amount of miniaturization in industry, especially in the electronic field and the aerospace program.

1605-T Set Contents and Specifications:

Wrench Size	Stock No.	Clears Bolt	Outside Diameter Socket End	Outside Diameter Handle End	Length
3/32"	T-6	19/64"	5/32"	1/4"	1/2"
1/8"	T-8	19/64"	7/32"	1/4"	1/2"
5/32"	T-10	19/64"	1/4"	1/4"	1/2"
3/16"	T-12	19/64"	5/16"	9/32"	1/2"
Driver	T-40	Shank Length 1 9/16" — Overall Length 4 1/16"			

(B) TA-107 Bit Holder. Designed to adapt our T-40 Grip Handle to accept Moody type bits. Overall length is 1" and it is 1/4" in diameter. A 1/4" hex portion permits tightening bits in place.

167-TM-B COMPLETE MIDGET SET—1/4" SQ. DRIVE



167-TM-B Complete Midget Set, 67 tools in KRA-282 Metal Box (19 1/4" x 5 5/8" x 1 1/4").

167-TM Set. Above Set without Box.

Select the High Quality *Snap-on* Set

You need for YOUR Work

Here are real utility sets of Midget wrenches for garage and service station, aircraft instrument, electric and electronic component assembly and service and all other businesses where tiny socket wrenches are needed for product assembly or maintenance. Each unit is proportioned and built to high standards of SNAP-ON tool design and quality. Wrench openings are precision machined to insure accurate fitting to tiny nuts and bolts, scientifically heat treated to give long wear. Chrome plated. Set at top of page has 67 tools, the one at the bottom has 36. Both sets housed in special die-formed metal boxes with baked-on red enamel finish.

136-TM-B MIDGET UTILITY SET



36 Small Tools For Work On Tiny Jobs

136-TM-B Midget Utility Set in KRA-275 Metal Box (8 3/16" x 5 11/16" x 1").

136-TMP-B Midget Set. Above 36 tools in plastic tray and KRA-284 Metal Box. Box is same as shown top of page but without partitions.

136-TMP Midget Set. Above tools in plastic tray but without Box.

Stock No.	Description	136-TMP Set	167-TM Set
TM-70B	Ratchet Wrench.....	X	X
TM-67A	Ratchet Adaptor.....	X	X
TMS-70	Ratchet Spinner.....	X	X
TM-5	Sliding Bar.....	X	X
TM-10F	Nut Spinner.....	X	X
TMS-4B	Speeder Handle.....	X	X
TM-4AS	Plastic Grip Handle.....	X	X
TMU-8	Universal Joint.....	X	X
TM-2	2" Extension.....	X	X
TMX-4	4" Extension.....	X	X
TM-60	6" Extension.....	X	X
TM-140	14" Extension.....	X	X
TM-62A	Flexible Handle.....	X	X
TM-61	6" Flexextension.....	X	X
TM-65	Flexible Adjuster Handle.....	X	X
TM-04	1/4" Single Hex Socket.....	X	X
TM-05	5/32" Single Hex Socket.....	X	X
TM-6	3/16" Single Hex Socket.....	X	X
TM-7	7/32" Single Hex Socket.....	X	X
TM-8	1/4" Single Hex Socket.....	X	X
TM-9	9/32" Single Hex Socket.....	X	X
TM-10	5/16" Single Hex Socket.....	X	X
TM-11	11/32" Single Hex Socket.....	X	X
TM-12	3/8" Single Hex Socket.....	X	X
TM-14	7/16" Single Hex Socket.....	X	X
TM-16	1/2" Single Hex Socket.....	X	X
TM-18	5/8" Single Hex Socket.....	X	X
STM-6	3/16" Deep Hex Socket.....	X	X
STM-7	7/32" Deep Hex Socket.....	X	X
STM-8	1/4" Deep Hex Socket.....	X	X
STM-9	9/32" Deep Hex Socket.....	X	X
STM-10	5/16" Deep Hex Socket.....	X	X
STM-11	11/32" Deep Hex Socket.....	X	X
STM-12	3/8" Deep Hex Socket.....	X	X
STM-14	7/16" Deep Hex Socket.....	X	X
STM-16	1/2" Deep Hex Socket.....	X	X
STM-18	5/8" Deep Hex Socket.....	X	X
TMU-81	1/4" Flexsocket.....	X	X
TMU-101	5/16" Flexsocket.....	X	X
TMU-121	3/8" Flexsocket.....	X	X
TMU-141	7/16" Flexsocket.....	X	X
TMU-161	1/2" Flexsocket.....	X	X
TMU-181	5/8" Flexsocket.....	X	X
TM-40B	1/4" Double Sq. Socket.....	X	X
TM-410	5/16" Double Sq. Socket.....	X	X
TM-412	3/8" Double Sq. Socket.....	X	X
TM-82	1/4" Tip Short Screw Driver.....	X	X
TMC-104A	3/16" Tip Screw Driver.....	X	X
TMC-105A	1/4" Tip Screw Driver.....	X	X
TMC-106A	5/16" Tip Screw Driver.....	X	X
TMP-12A	No. 1 Phillips Screw Driver.....	X	X
TMP-22A	No. 2 Phillips Screw Driver.....	X	X
TMP-23A	No. 2 Phillips Screw Driver (Long).....	X	X
TM-27	1 1/4" Clutch Screw Driver.....	X	X
TM-30	1 3/4" Clutch Screw Driver.....	X	X
TM-31	2" Clutch Screw Driver.....	X	X
TMA-2 1/2	5/64" Hex Head Screw Driver.....	X	X
TMA-3	3/32" Hex Head Screw Driver.....	X	X
TMA-3 1/2	7/64" Hex Head Screw Driver.....	X	X
TMA-4	1/8" Hex Head Screw Driver.....	X	X
TMA-4 1/2	9/64" Hex Head Screw Driver.....	X	X
TMA-5	5/32" Hex Head Screw Driver.....	X	X
TMA-6	3/16" Hex Head Screw Driver.....	X	X
TMA-7	7/32" Hex Head Screw Driver.....	X	X
TMA-8	1/4" Hex Head Screw Driver.....	X	X
TM-84	1/32" x 1/16" Screw Driver Blade.....	X	X
TM-83A	1/32" x 3/16" Screw Driver Blade.....	X	X

POPULAR SETS OF MIDGET *Snap-on* WRENCHES



Don't cuss out those tiny, hard-to-reach jobs. Make them pay off with a SNAP-ON $\frac{1}{4}$ " drive Midget wrench set. It's just the ticket for dashboard work, distributor work, air conditioner work, etc. For work on radio, television, and all electronic and electrical assembly and service they meet

the most exacting requirements. SNAP-ON quality and precision machining and heat treatment really pays off on these tiny tools. You benefit from the *Flank Drive* configuration of the hex sockets (see page 6), a factor that is particularly important on small nut tightening.

MIDGET SETS— $\frac{1}{4}$ " SQUARE DRIVE

A 120-TMP-B Midget Standard Set. Contains twenty popular wrenches and handles in our $\frac{1}{4}$ " drive line as listed at right. In KRA-255 metal box. Box is $6\frac{1}{2}$ " x $4\frac{3}{16}$ " x $1\frac{1}{16}$ ".

120-TMP Set. Above tools in plastic tray but without box.

B 115-TM-B Midget Flex Set. Excellent for work on small assemblies or in cramped areas. Complete in plastic tray and KRA-229 Metal Box. Box is $7\frac{1}{16}$ " x $2\frac{3}{8}$ " x $1\frac{1}{16}$ ".

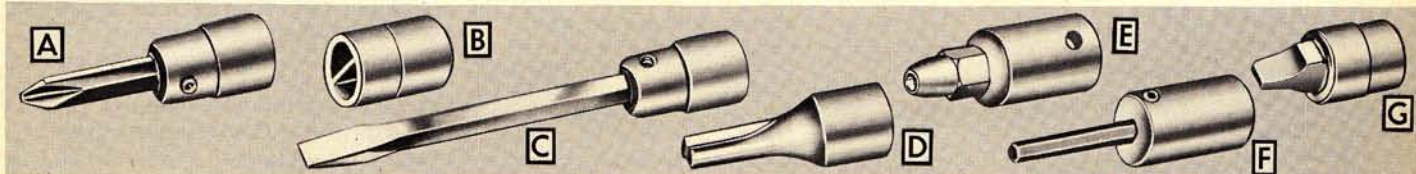
115-TM Set. Above set without box.

C 113-TM-B Midget Basic Set. Gives you the most basic sockets and a nut spinner. In KRA-222B Metal Box ($6\frac{1}{16}$ " x $2\frac{3}{8}$ " x $1\frac{1}{16}$ ").

113-TM Set. Above set without box.

CONTENTS OF SETS

Stock No.	Description	120-TMP Set	115-TM Set	113-TM Set	Stock No.	Description	120-TMP Set	115-TM Set	113-TM Set
TM-2	2" Extension Bar.....	X	X	...	TM-10	$\frac{5}{16}$ " Single Hex Socket	X	X	X
TM-5	Sliding Bar Handle....	X	...	...	TM-11	$\frac{11}{32}$ " Single Hex Socket	X	X	X
TM-4A	Plastic-Grip Handle....	X	...	...	TM-12	$\frac{3}{8}$ " Single Hex Socket	X	X	X
TM-10F	Nut Spinner Handle....	X	...	X	TM-14	$\frac{7}{16}$ " Single Hex Socket	X	X	X
TM-60	6" Extension Bar.....	X	...	...	TM-16	$\frac{1}{2}$ " Single Hex Socket	X	X	X
TM-70B	Ratchet Wrench.....	X	...	...	TM-18	$\frac{9}{16}$ " Single Hex Socket	X	X	...
TM-04	$\frac{1}{8}$ " Single Hex Socket	...	X	...	TM-408	$\frac{1}{4}$ " Square Socket....	X	...	X
TM-05	$\frac{5}{32}$ " Single Hex Socket	...	X	...	TM-410	$\frac{5}{16}$ " Square Socket...	X	...	X
TM-6	$\frac{3}{16}$ " Single Hex Socket	X	X	X	TM-412	$\frac{3}{8}$ " Square Socket....	X	...	X
TM-7	$\frac{7}{32}$ " Single Hex Socket	X	X	X	TM-711	Flexhead Ratchet.....	...	X	...
TM-8	$\frac{1}{4}$ " Single Hex Socket.	X	X	X	TMU-8	Universal Joint.....	X	...	...
TM-9	$\frac{9}{32}$ " Single Hex Socket	X	X	X	TMX-4	4" Extension Bar.....	...	X	...



These Midget Attachments with $\frac{1}{4}$ " Square Drive Increase Usefulness of Your Kit

A PHILLIPS SCREW DRIVERS

TMP-01 No. 0 Driver. $12\frac{7}{32}$ " long.

TMP-01-2 Extra No. 0 Bit. $1\frac{1}{4}$ " long.

ESD-319 Roll-Pin for above.

TMP-12A No. 1 Driver. $12\frac{7}{32}$ " long.

TMP-12A-2 Extra No. 1 Bit, $1\frac{1}{16}$ " long.

TMP-21 No. 2 Driver. $1\frac{7}{32}$ " long.

TMP-21-2 Extra No. 2 Bit, $1\frac{1}{16}$ " long.

TMP-22A No. 2 Driver. $12\frac{7}{32}$ " long.

FP-22A-2 Extra No. 2 Bit, $1\frac{1}{16}$ " long.

TMP-23A No. 2 Driver. $3\frac{1}{32}$ " long.

TMP-23A-2 Extra No. 2 Bit, $1\frac{1}{2}$ " long.

ESD-303 Roll-Pin for above.

B CARBURETOR SCREW DRIVERS

Used with TM-65 wrench or other $\frac{1}{4}$ " drive handles. Blade is recessed in outer wall of socket to self-center. Made for carburetor work but have other uses.

TM-83A $\frac{1}{32}$ " x $2\frac{3}{64}$ " blade.

TM-84 $\frac{1}{32}$ " x $\frac{7}{16}$ " blade.

TM-85 $\frac{1}{32}$ " x $\frac{9}{32}$ " blade. For adjusting Quadrajets carburetors.

C STANDARD SCREW DRIVERS

These standard tip screw drivers are time savers on many jobs. Each is $2\frac{7}{8}$ " long.

▲ TMC-104A Screw Driver. $\frac{3}{16}$ " x .032" tip.

TMC-104B-2 Extra Bit.

ESD-319 Roll-Pin for TMC-104A.

TMC-105A Screw Driver. $\frac{1}{4}$ " x .032" tip.

TMC-105B-2 Extra Bit.

TMC-106A Screw Driver. $\frac{3}{8}$ " x .042" tip.

TMC-106B-2 Extra Bit.

ESD-303 Roll-Pin for TMC-105A & TMC-106A.

D CLUTCH SCREW DRIVERS

For turning Clutch-type, Butterfly or Figure-8 screws in close quarters. $1\frac{3}{8}$ " overall length.

TM-27 Screw Driver. $1\frac{1}{64}$ " bit diameter.

TM-30 Screw Driver. $1\frac{5}{64}$ " bit diameter.

TM-31 Screw Driver. $\frac{5}{32}$ " bit diameter.

E SCREW DRIVER BIT HOLDER

TMC 107 Screw Driver. Adapts $\frac{1}{4}$ " square drive handles to accept Moody type bits, such as small screw drivers. The nose part screws onto the drive end and has a $\frac{1}{4}$ " hex to allow wrench tightening to secure the bit.

F HEX HEAD SCREW DRIVERS

Complete Tool		Hex Bit Only	Screws or Roll Pin
Stock No.	Hex Size		
TMA-2	$\frac{1}{16}$ "	TMA-2-2	ME3F11
TMA-2 $\frac{1}{2}$	$\frac{3}{64}$ "	TMA-2.5-2	ME3F11
TMA-3	$\frac{3}{32}$ "	TMA-3-2	ME3F11
TMA-3 $\frac{1}{2}$	$\frac{1}{64}$ "	TMA-3.5-2	ME3F11
TMA-4	$\frac{1}{8}$ "	TMA-4-2	ME3F11
TMA-4 $\frac{1}{2}$	$\frac{9}{64}$ "	TMA-4.5-2	ME3F11
TMA-5	$\frac{5}{32}$ "	FA-5A-2	ESD-319
TMA-6	$\frac{3}{16}$ "	FA-6A-2	ESD-303
TMA-7	$\frac{1}{32}$ "	FA-7A-2	ESD-303
TMA-8	$\frac{1}{4}$ "	FA-8A-2	ESD-303

Long Hex Bits. For use in the electronics and missile industries. 6" long.

TMAL-2-2 $\frac{1}{16}$ " TMAL-3.5-2 $\frac{3}{64}$ "

TMAL-2.5-2 $\frac{5}{64}$ " TMAL-4-2 $\frac{1}{8}$ "

TMAL-3-2 $\frac{3}{32}$ " TMAL-4.5-2 $\frac{9}{64}$ "

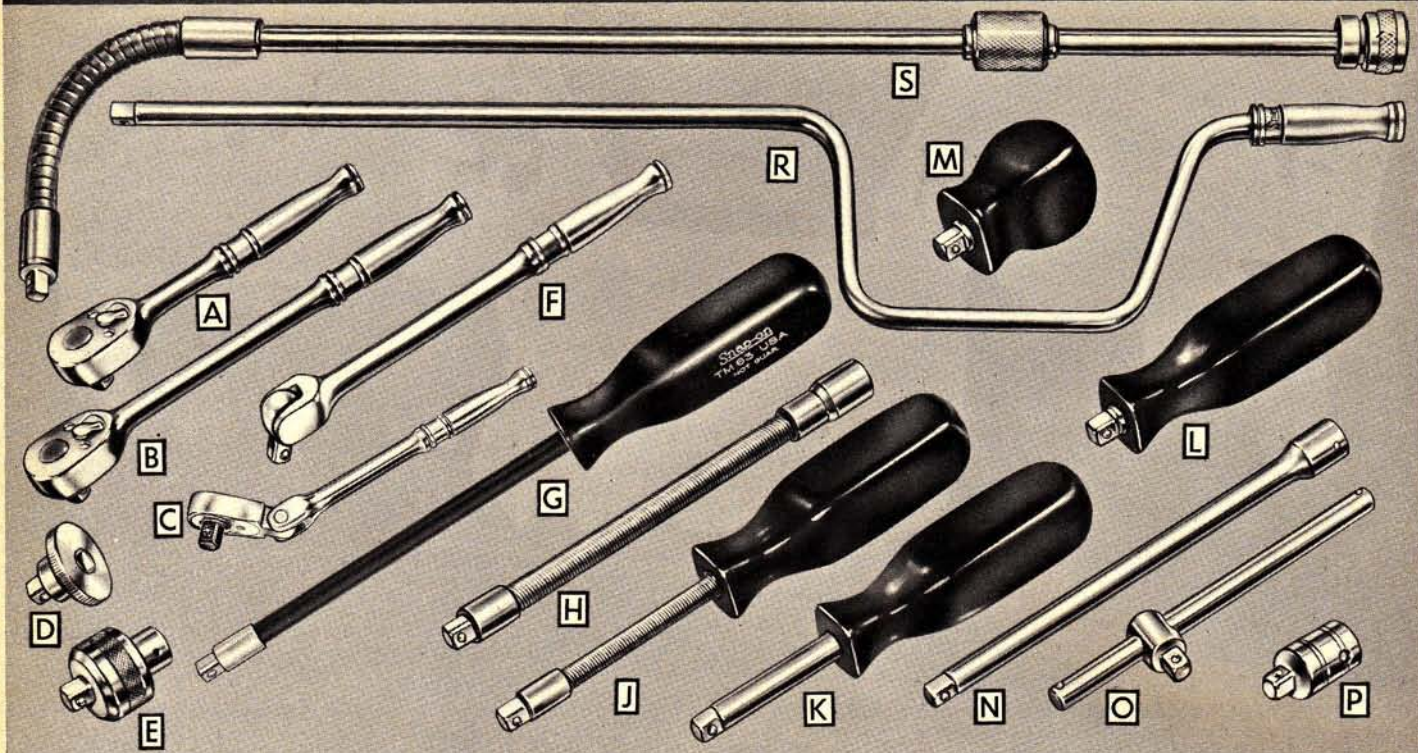
G SHORT ST'D SCREW DRIVER

Works where space is limited. Blade tip is $\frac{1}{4}$ " x .032" and is replaceable. $\frac{7}{8}$ " long.

TM-82-2 Screw Driver Bit only.

ESD-315 Roll-Pin only.

Snap-on MIDGET WRENCH HANDLES—1/4" SQUARE DRIVE



Snap-on MIDGET HANDLES AND ATTACHMENTS (1/4" Square Drive)

▲ **A** **TM-70B Midget Ratchet Wrench.** The finest ratchet ever made in such a small size... It reverses by shifting the thumb lever... 20 tooth gear allows working in only an 18° arc... useful in close places where handle swing is limited. Overall length is only 4 7/16", head thickness is 3/8".

B **TML-70A Long Handled Midget Ratchet Wrench.** For that extra leverage to tighten or loosen that stubborn nut, this Ratchet Wrench is the answer. It also reverses by shifting the thumb lever and has the 20 tooth gear which allows working in an arc of only 18°. Overall length is 6 1/2", head thickness is 3/8" and head width is 2 7/32".

C **TM-711 Flexhead Ratchet.** Reaches those hard-to-get-at nut or screw turning jobs. The ratchet head is held in a semi-flex condition under spring tension and swings to the required working position—gives you plenty of clearance, turning convenience and power.

RKR-930 Ratchet Repair Kit. Contains the parts needed to replace worn working parts of the TM-70B, TML70A and TM-711 ratchets listed above. No need to wait for the SNAP-ON dealer or send the ratchet to a repair center when you have this kit.

D **TMS-70 Ratchet Spinner.** Speeds up work since it allows the socket or attachment to be turned with the fingers without the need of moving the ratchet handle. Fits in between the ratchet and the socket so nuts may be spun fast by hand. Milled edge provides good grip.

FTL-703 Ratchet Spinner Set, one each for 1/4", 3/8", 1/2" square drive ratchets.

▲ **E** **TM-67A Midget Ratchet Adaptor.** Adds reversible ratcheting speed to any Midget handle... also useful for work with 1/4" square drive "Torquometers." Convenient side button reverses the action. 20-tooth action gives new "bite" every 18°. 1 3/8" long, 1 5/16" O.D.

▲ **F** **TM-10F Midget "Nut Spinner."** A handle providing the utmost utility... head is held in a semi-flex condition by a hidden spring and can be used at any position from the handle. Combines a speeder handle for quick nut-turning and an offset handle for bringing them up tight. 6" long.

G **TM-63 Insulated Flex-Shaft Driver.** This tool has a flexible steel shaft with insulated covering which makes it a good unit to be used with the TMA-4 Hex Head Cap Screw Driver, page 31, for servicing the Delco-Remy window-type distributors. The insulation prevents accidentally shorting out the coil while adjusting the points. Tool can be used with any 1/4" drive socket or screw driver for awkward jobs, carburetor work, etc. Tool shaft is 5 7/16" long, overall length 9 1/16".

▲ **H** **TM-61 Midget "Flexextension."** Made of best 5/16" diameter flexible cable, this addition to your Midget line of tools will help you reach awkward, hard-to-get-at nuts where a solid handle or extension bar cannot possibly be used. Not intended for breaking loose tight nuts, etc. Length 6".

▲ **J** **TM-62A Flexible Driver.** Has the comfortable, powerful "Contour-Grip" handle. For use on hard-to-reach jobs. Will take all 1/4" Midget attachments. The flexible steel cable is firmly anchored to handle. 6 3/4" long.

▲ **K** **TM-4AS Plastic Grip Handle.** Has a 1/4" drive end inserted in handle so it can be used as an extension bar. Overall length 5 3/4", shank 2" long.

▲ **L** **TM-4A Plastic Grip Handle.** The same as TM-4AS but without the 1/4" square drive hole in the handle.

M **TM-40A Plastic Grip Handle.** Short shank model, only 4 1/8" overall length.

N **TM-40AS Plastic "Stubby" Handle.** Drive projects 3/8" just enough to provide space for socket. Only 2 1/8" long. Excellent for getting into that tight corner with plenty of power.

O **Midget Extension Bars.** Lengthen the reach and increase the adaptability of Midget handles. Four popular sizes.

▲ **TM-2 Extension Bar.** 2" overall length.

TMX-4 Extension Bar. 4" overall length.

▲ **TM-60 Extension Bar.** 6" overall length.

TM-140 Ext. Bar. 14" overall length.

▲ **Q** **TM-5 Midget Sliding Bar.** Combines a tee handle with an offset handle. Sliding head can be used at any position on handle and can be slid back and forth to provide turning room without removing tool from job. Handle length is 4 1/2", head depth is 1 1/16", 1/4" drive.

P ADAPTORS

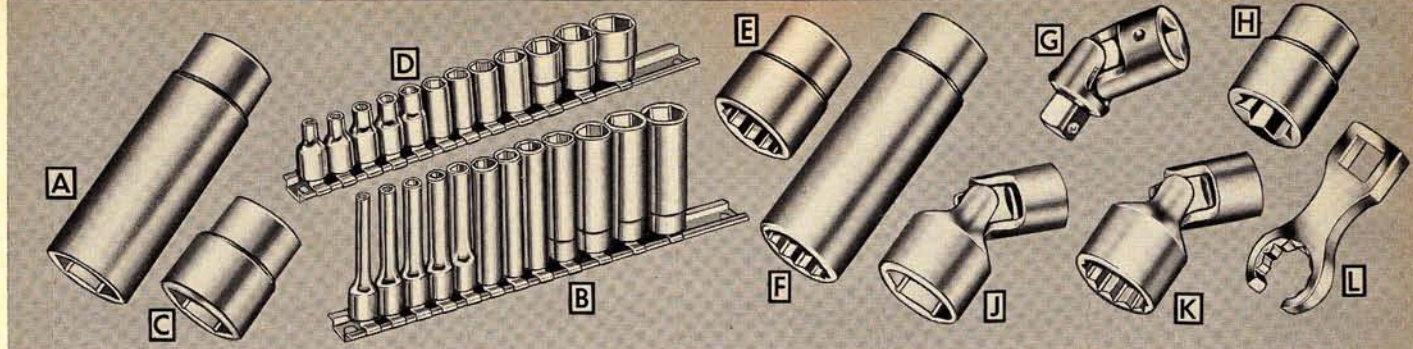
▲ **TM-1** 3/8" female, 1/4" male.

▲ **TA-3** 1/4" female, 3/8" male.

▲ **R** **TMS-4B Midget Speeder.** Time saver anywhere that long reach is needed for breaking loose or firmly seating small nuts or bolts. Spins them off in a hurry. Handle turns freely for easy operation. 16 3/4" long, shank length is 9", radius of handle sweep is 2 7/8".

S **TM-65 Flexible Adjusting Wrench.** Handy for adjusting four barrel or dual carburetors. 19 3/4" long, clears obstructions such as air cleaners, etc. Thin, gets into close quarters. Has 1/4" square drive. Knurled knob and drive are connected by a shaft and dual wound wires. Etched mark on knob permits counting of turns made.

Snap-on MIDGET SOCKETS—1/4" SQUARE DRIVE



The SNAP-ON "Flank Drive" hexagon configuration was developed originally to increase the wrench efficiency in turning high tension, 12-point fasteners. It has proved so superior to ordinary 6 and 12 point hex wrenches for use on 6-point hex nuts and bolts that it is now standard design on these SNAP-ON sockets. See page 6.

METRIC AND BRITISH SIZES OF MIDGET — 1/4" SQUARE DRIVE SOCKETS ARE ON PAGES 54 AND 57

FLANK DRIVE DEEP SINGLE HEX SOCKETS

(A) Thin straight walls reach down over protruding bolts.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 1/8"	STM-04	121/32"	15/64"	7/16"	2"
* 5/32"	STM-05	121/32"	17/64"	7/16"	2"
* 3/16"	STM-6	121/32"	19/64"	7/16"	2"
* 7/32"	STM-7	121/32"	11/32"	7/16"	2"
1/4"	STM-8	121/32"	3/8"	7/16"	2"
9/32"	STM-9	121/32"	7/16"	7/16"	2"
5/16"	STM-10	121/32"	7/16"	7/16"	2"
11/32"	STM-11	121/32"	1/2"	1/2"	2"
3/8"	STM-12	121/32"	9/16"	1/2"	2"
7/16"	STM-14	121/32"	3/8"	9/16"	2"
1/2"	STM-16	121/32"	11/16"	19/32"	2"
9/16"	STM-18	119/32"	25/32"	23/32"	2"

*Has regular (not Flank Drive) broaching.

(B) 112-STM-Y Set. Above twelve deep single hex sockets, with A-265 Mounting Bracket and twelve socket holders.

FLANK DRIVE SINGLE HEX SOCKETS

(C) Thin, straight walls reach into the tightest working spaces.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 1/8"	TM-04	1/2"	15/64"	7/16"	3/8"
* 5/32"	TM-05	1/2"	17/64"	7/16"	3/8"
* 3/16"	TM-6	17/32"	19/64"	7/16"	3/8"
* 7/32"	TM-7	17/32"	11/32"	7/16"	3/8"
1/4"	TM-8	17/32"	3/8"	7/16"	3/8"
9/32"	TM-9	17/32"	7/16"	7/16"	3/8"
5/16"	TM-10	17/32"	7/16"	7/16"	3/8"
11/32"	TM-11	17/32"	1/2"	1/2"	3/8"
3/8"	TM-12	17/32"	9/16"	9/16"	3/8"
7/16"	TM-14	17/32"	3/8"	9/16"	3/8"
1/2"	TM-16	17/32"	11/16"	19/32"	3/8"
9/16"	TM-18	7/16"	25/32"	23/32"	3/8"

*Has regular (not Flank Drive) broaching.

(D) 112-TM-Y Set. Above twelve single hex sockets, with A-265 Mounting Bracket and twelve socket holders.

112-TM Set. Above set but sockets only.

MOUNTING BRACKET AND HOLDERS

A-265 Mounting Bracket, 7/8" long.

A-271 Socket Holders. For 1/4" square drive sockets. Package of 100.

(E) TMU-8 Universal Joint. Works around obstructions to do a fast efficient job. 1 15/64" long, 1/2" O.D., 1/4" square drive.

FLANK DRIVE DOUBLE HEX SOCKETS

(E) Thin, straight walls get in close quarters. Hot broached, precisely machined.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 3/16"	TMD-6	17/32"	19/64"	7/16"	7/8"
* 7/32"	TMD-7	17/32"	11/32"	7/16"	7/8"
1/4"	TMD-8	17/32"	3/8"	7/16"	7/8"
9/32"	TMD-9	17/32"	7/16"	7/16"	7/8"
5/16"	TMD-10	17/32"	7/16"	7/16"	7/8"
11/32"	TMD-11	17/32"	1/2"	1/2"	7/8"
3/8"	TMD-12	17/32"	9/16"	9/16"	7/8"
7/16"	TMD-14	17/32"	3/8"	9/16"	7/8"
1/2"	TMD-16	17/32"	11/16"	19/32"	7/8"
9/16"	TMD-18	17/32"	25/32"	23/32"	7/8"

*Has regular (not Flank Drive) broaching.

110-TMD Set. Above 10 sockets.

FLANK DRIVE DEEP DOUBLE HEX SOCKETS

(F) Reach down over protruding bolts ... double hex broaching aids in turning nuts where wrench handle movement is very limited.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 3/16"	STMD-6	121/32"	19/64"	7/16"	2"
* 7/32"	STMD-7	121/32"	11/32"	7/16"	2"
1/4"	STMD-8	121/32"	3/8"	7/16"	2"
9/32"	STMD-9	121/32"	7/16"	7/16"	2"
5/16"	STMD-10	121/32"	7/16"	7/16"	2"
11/32"	STMD-11	121/32"	1/2"	1/2"	2"
3/8"	STMD-12	121/32"	9/16"	9/16"	2"
7/16"	STMD-14	121/32"	5/8"	9/16"	2"
1/2"	STMD-16	121/32"	11/16"	19/32"	2"
9/16"	STMD-18	119/32"	25/32"	23/32"	2"

*Has regular (not Flank Drive) broaching.

110-STMD Set. Above 10 deep double hex sockets.

DOUBLE SQUARE SOCKETS

(H) Double broaching gives new grip with only 45° turn.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
1/4"	TM-408	17/32"	15/32"	7/16"	3/8"
5/16"	TM-410	17/32"	9/16"	9/16"	3/8"
3/8"	TM-412	17/32"	21/32"	9/16"	3/8"

103-TM Set. Above 3 sockets.

FLANK DRIVE SINGLE HEX FLEXOCKETS

Designed especially for use on 6 point self-tapping screws used by the automotive trade and body shops. Used with any 1/4" square drive handle.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 3/16"	TMUS-61	5/16"	19/64"	15/32"	1 11/64"
1/4"	TMUS-81	5/16"	3/8"	15/32"	1 11/64"
5/16"	TMUS-101	11/32"	15/32"	15/32"	1 1/4"
11/32"	TMUS-111	11/32"	1/2"	15/32"	1 9/32"
3/8"	TMUS-121	3/8"	17/32"	15/32"	1 9/16"
7/16"	TMUS-141	3/8"	39/64"	15/32"	1 29/64"
1/2"	TMUS-161	15/32"	43/64"	15/32"	1 29/64"
9/16"	TMUS-181	15/32"	25/32"	15/32"	1 31/64"

*Has regular (not Flank Drive) broaching.

108-TMUS Set. The above eight single hex Flexockets.

FLANK DRIVE DOUBLE HEX FLEXOCKETS

(K) Short coupled, work in very close quarters.

Wrench Size	Stock No.	Clears Bolt	O.D. Socket End	O.D. H'dle End	L'gth
* 3/16"	TMU-61	5/16"	11/32"	15/32"	1 11/64"
7/32"	TMU-71	5/16"	11/32"	15/32"	1 11/64"
1/4"	TMU-81	5/16"	3/8"	15/32"	1 11/64"
9/32"	TMU-91	11/32"	27/64"	15/32"	1 7/32"
5/16"	TMU-101	11/32"	15/32"	15/32"	1 1/4"
11/32"	TMU-111	11/32"	1/2"	15/32"	1 9/32"
3/8"	TMU-121	3/8"	17/32"	15/32"	1 9/16"
7/16"	TMU-141	3/8"	39/64"	15/32"	1 29/64"
1/2"	TMU-161	15/32"	43/64"	15/32"	1 29/64"
9/16"	TMU-181	15/32"	25/32"	15/32"	1 31/64"

*Has regular (not Flank Drive) broaching.

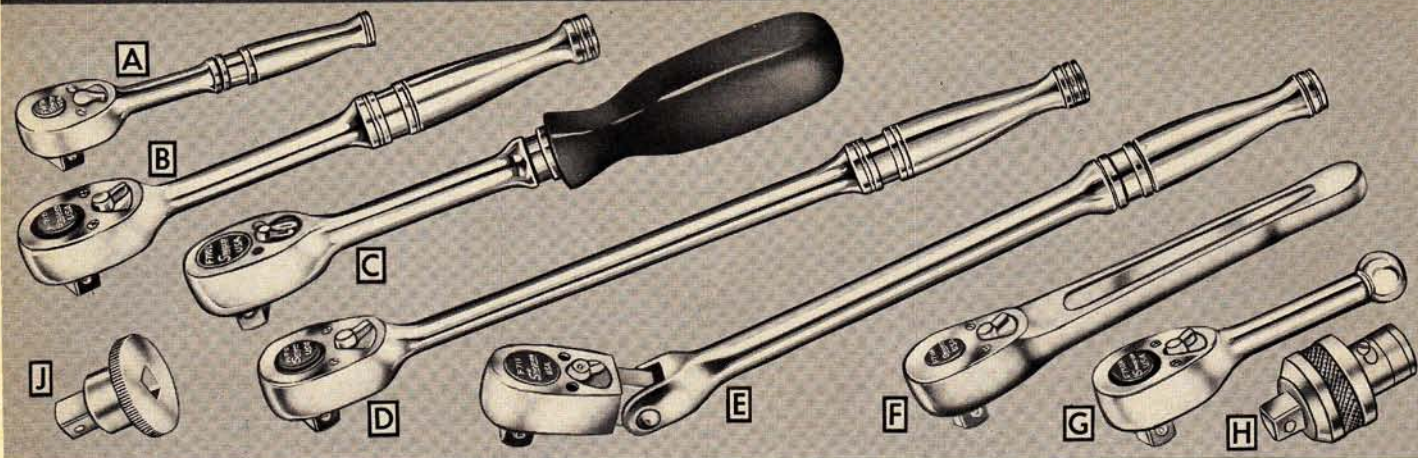
110-TMU Set. The above ten double hex Flexockets.

DOUBLE HEX CROWFOOT WRENCHES

Designed for servicing 12 point nuts and bolts on small jet engines. Use with any 1/4" square drive handle or "Torqometer". They add 1" to distance between hand and nut when used with the "Torqometer". Only 1/4" thick.

Wrench Size	Stock No.	Center to Center	Length
1/4"	TMRX-8	1"	1 15/16"
5/16"	TMRX-10	1"	1 3/8"
3/8"	TMRX-12	1"	1 7/16"

Snap-on FERRET RATCHETS—3/8" SQUARE DRIVE



You Get All These Superior Features In

Snap-on

"FERRET" WRENCHES

- Easy to hold palm-grips on handles
- Choice of seven different types of ratchets and ratchet adaptor
- Long slim handles for close-in work
- Handle drives have strong spring and friction ball for positive socket grip
- Wide range of socket types and sizes
- 4-way socket grip for faster hook-ups
- Chip-curved hot broached socket walls
- Large variety of special attachments
- High grade alloy steel for strength
- Controlled hardening for long wear
- Chrome plated finish

Behind the fine appearance of these tools is something you can't see — the quality of the fine alloy steel and the electronically controlled heat treating which combine to give SNAP-ON tools extra strength and wear resistance. The result is tough, long wearing sockets and handles that perform far better and cost less in the long run.

A FM-70 "Ferret" Small Head Ratchet. The extremely small head size lets you get into the tight working areas frequently encountered in modern automotive, electrical, and industrial assemblies. Yet, you can turn a wide range of nut sizes with this ratchet because it accepts all 3/8" square drive sockets and adaptors.

The overall length of this compact ratchet is 4 27/64", and its head width is only 2 7/32". The 20-tooth gear action takes a new bite in an 18-degree handle swing.

B F-71G "Ferret" Ratchet. 30 tooth action allows a new bite every 12° of handle movement. Pawl engages 2 teeth for extra strength. Tool is heavily chrome plated... ratchet gear has gun metal finish. Head diameter is 1 1/8", head depth 7/16", 7 9/16" long. A quality tool for men who want the best.

B F-710D "Ferret" Ratchet. 20 tooth action. 18° handle movement gives a new bite. Tool is heavily chrome plated... ratchet gear has gun metal finish. Head diameter is 1 1/8", head depth 7/16", 7 9/16" long. A very popular tool with professional mechanics.

C F-710A-LS "Ferret" Ratchet. Every 18° handle movement provides a new bite. Has 20 tooth action. Contour-grip handle assures comfort and positive control. Tool is heavily chrome plated. Head diameter is 1 1/8", depth 7/16" and 8 5/16" overall. Gear head dust cover helps keep dirt out.

D FL-710B "Ferret" Ratchet. Has extra long handle, 10 13/16" overall, to give added leverage. Has 20 tooth action which gives a new bite for every 18° of handle movement. Head has 1 1/8" diameter and is 7/16" thick.

E F-711A Ferret Flex Ratchet. Saves time on jobs close to obstructions, excellent for spark plug work. The 20-tooth ratchet action is reversible and the flexible head has spring to hold it at desired angle for placement on the job. Length is 11 3/16". Head is 7/16" deep and 1 1/16" diam.

F F-71N Ferret Flat Handle Ratchet. Has the same smooth working reversible 20-tooth action as other ratchets in the line. The gear drive and bottom head plate have black finish. Head diam. is 1 1/8", depth 7/16", 6 3/8" long.

G F-710BK Ferret Short Ratchet. For use in very restricted access areas. Reversible 20-tooth action gives a new bite with only 18° handle movement. Overall length is only 4". Ball end helps prevent hand slipping. Gear drive has black finish. Head diameter is 1 1/8" and depth 7/16".

H F-67B "Ferret" Ratchet Adaptor. This useful accessory converts any "Ferret" 3/8" square drive handle into a reverse action ratcheting tool, provides speed where you cannot use a standard type ratchet wrench, convenient side button reverses the ratchet action. Adds versatility to your 3/8" square drive Torquometers. 1 3/4" O.D. 2" long.

I FRS-70 Ratchet Spinner. Fits in between ratchet and socket so nuts may be spun fast by hand without need of moving ratchet handle. Milled edge provides good grip.

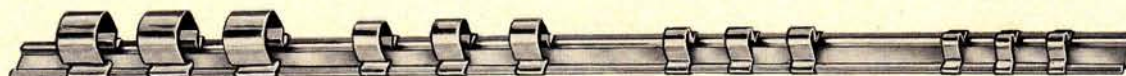
REPAIR KITS

FOR Snap-on RATCHETS

These kits enable you to service your own SNAP-ON Ratchets without the inconvenience of waiting for your dealer, or sending the ratchet to a repair center. The parts in these kits will restore your ratchets to like new condition.

RKR-38ALS Ratchet Repair Kit. Consists of parts necessary to repair the F-710D Ratchet, the F-710A-LS Ratchet, the FL-710B Ratchet, the F-711A Ratchet and the F-710BK Ratchet.

RKR-380 Ratchet Repair Kit. Consists of parts necessary to repair the F-71N Ratchet.



SOCKET WRENCH HOLDERS AND MOUNTING BRACKET

These units provide a convenient method of storing socket wrenches and accessories with square drive openings. The bracket can be attached to perforated or plain wall board or inside a wall cabinet or to drawer or tote tray bottoms, etc. The socket holders slide to the desired position and then grip the bracket when the socket is mounted on the holder.

Picture shows a bracket and three of each size holder.

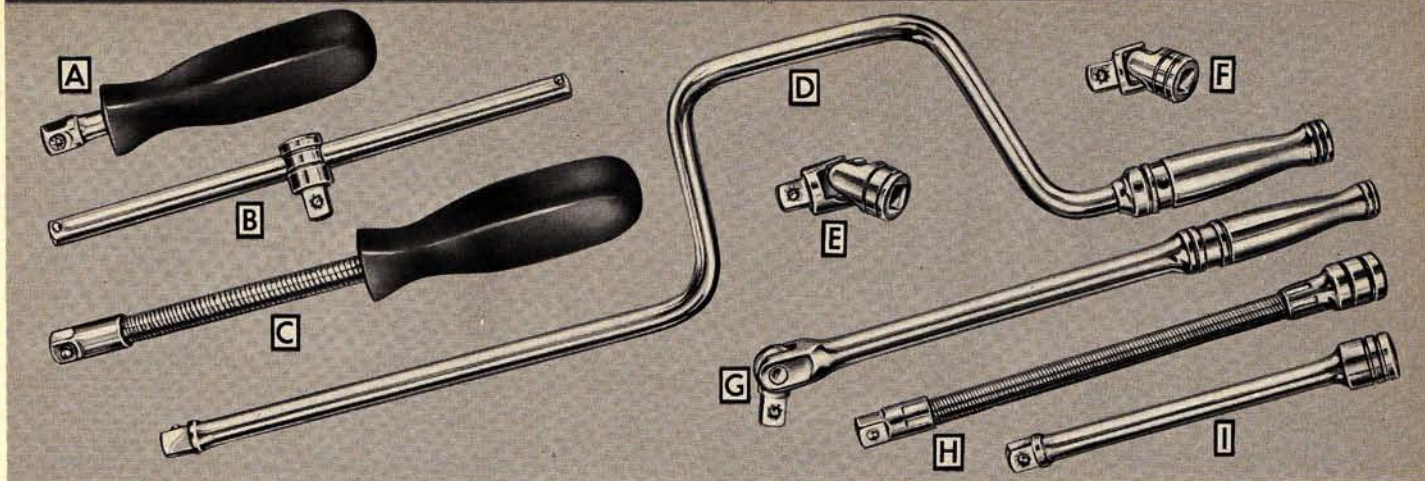
Holders are sold in packages of 100

- A-271 Holders for 1/4" Sq. Drive Units (100)
- A-272 Holders for 3/8" Sq. Drive Units (100)
- A-273 Holders for 1/2" Sq. Drive Units (100)
- A-274 Holders for 3/4" Sq. Drive Units (100)

Mounting Brackets in Six Different Sizes

- A-265 Mounting Bracket — 7 3/8" long.
- A-269 Mounting Bracket — 10 3/8" long.
- A-267 Mounting Bracket — 13 3/8" long.
- A-270 Mounting Bracket — 16 3/4" long.
- A-266 Mounting Bracket — 23 3/8" long.
- A-268 Mounting Bracket — 31 1/2" long.

Snap-on FERRET HANDLES—3/8" SQUARE DRIVE



(A) F-40A "Ferret" "Contour-Grip" Plastic Grip Handle. Make your "Ferret" set more useful with this shock-proof, moisture, oil, gas and grease-proof plastic handle. Excellent for all electrical work. Will not roll. Extremely comfortable to work with. Gives positive grip. 5 1/8" long.

▲ **(B) F-5L "Ferret" Sliding Bar.** Head slides to any position... a friction ball contacts groove in the handle to center the tool as a tee handle. Handle length 8", diameter 1 3/32", head depth 1 3/16".

(C) FX-62A Flexible Driver. A flexible steel cable allows user to reach around corners or obstructions to service screws or nuts. The square drive end has a spring loaded friction ball which holds attachment in place, other end is firmly anchored in black plastic "Contour-Grip" handle. This Driver is not intended for final tightening or breaking loose stubborn nuts or screws. Overall length is 9 1/8".

(D) "Ferret" Speeders. It is impossible to beat a speeder type of wrench handle for fast nut running. "Palm-Grip" handle rotates to provide easy operation. Three models offer the right length shank for your needs. Radius of the sweep is 3 1/4".

▲ **F-4LA Speeder...** 17 5/8" long. 8 1/2" Shank.
F-4MA Speeder... 24 1/2" long. 15" Shank.
F-4NA Speeder... 36 1/2" long. 27" Shank.

Universal Joints. Tension spring holds tool in a semi-flex state for easy application to the job.

▲ **(E) FU-8A Universal Joint.** 3/4" outside diameter, length 1 15/16".

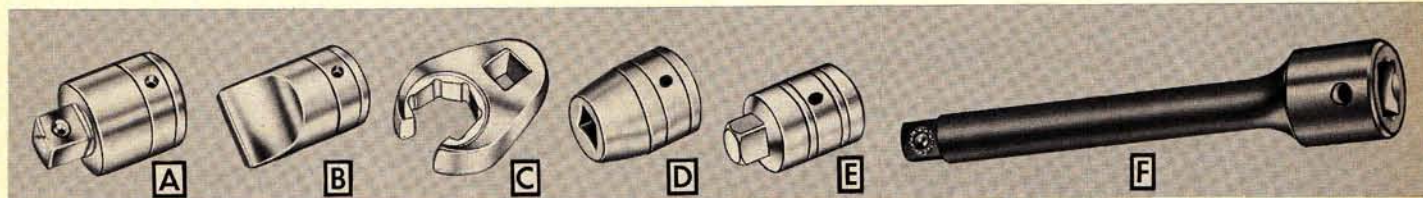
▲ **(F) FU-80A Universal Joint.** 1 1/16" outside diameter, length 1 9/16".

▲ **(G) F-10LB "Ferret" "Nut Spinner."** Plenty of leverage for pulling nuts up tight or for breaking them loose... the swivel head is held in a semi-flex condition at any position by means of an inner spring. 9 1/2" long. Head diam. 1 3/16".

(H) FX-61 "Ferret" "Flexextension." Acts as a flexible drive between wrench handle and socket and provides an easy method of turning nuts in awkward positions... works around corners and over obstructions. The tool consists of a 3/8" diameter flexible steel cable fitted with square drive socket ends. Length is 8". Not intended for breaking nuts loose or similar tough jobs.

▲ **(I) "Ferret" Extension Bars.** The advantage of having just the right length extension bar often means getting the job done quicker and with less effort.

FX-1	Extension Bar	1 1/2" Long.
FX-2	Extension Bar	3" Long.
FX-4	Extension Bar	4 1/8" Long.
FX-6	Extension Bar	6" Long.
FX-8	Extension Bar	8" Long.
FX-11	Extension Bar	12" Long.
FX-18	Extension Bar	18" Long.
FX-24	Extension Bar	23 1/4" Long.
FX-36	Extension Bar	36" Long.



HANDLE ADAPTORS

(A) Enable you to interchange Ferret wrenches with Midget and Master units.

TM-1 Adaptor. Converts 3/8" square drive handles to 1/4".

TA-3 Adaptor. Converts 1/4" square drive handles to 3/8".

A-2 Adaptor. Converts 3/8" square drive handle to 1/2".

A-4 Adaptor. Converts 1/2" square drive handles to 3/4".

DRAG LINK SOCKET

(B) F-22A Drag Link Socket. A heavy duty screw driver attachment that will prove ideal for adjusting and tightening slotted nuts on steering gear assemblies, shock absorbers, drag links, etc. Blade is 1 1/16" wide and 7/64" thick. Overall length of tool 1 1/4".

PIPE PLUG SOCKETS

These single square sockets are designed for use on the pipe plugs used on many current model cars. 3/8" sq. drive. 1" long.

(D) PP-409 Socket. 9/32" square opening.

(D) PP-410 Socket. 5/16" square opening.

(D) PP-412 Socket. 3/8" square opening.

(E) PPM-410 Pipe Plug Socket. This socket has a 5/16" square to fit the openings in 3/8" pipe plug fittings. 1 1/16" long, 3/8" square drive.

(E) PPM-411 Pipe Plug Socket. 1 1/32" square wrench plug and 3/8" square drive. For car transmissions and differential plugs. Also used on Mack Trucks, small V-8 International Harvester engines, White Motors and Cummins Diesel blocks.

ADAPTORS

(F) Has a 1/2" female square drive and a 3/8" male drive, which allows 3/8" drive sockets to be used on 1/2" drive handles or Impact wrenches. These adaptors are especially useful on automatic transmissions where limited clearance prevents use of bulkier 1/2" drive sockets. In addition to this, they can be used any place where thin walled 3/8" drive sockets are needed, such as removing and replacing fasteners on intake manifolds, radiators or any other confined area. Available in 3 sizes.

AX-4 Adaptor 5" Long.

AX-12 Adaptor 12" Long.

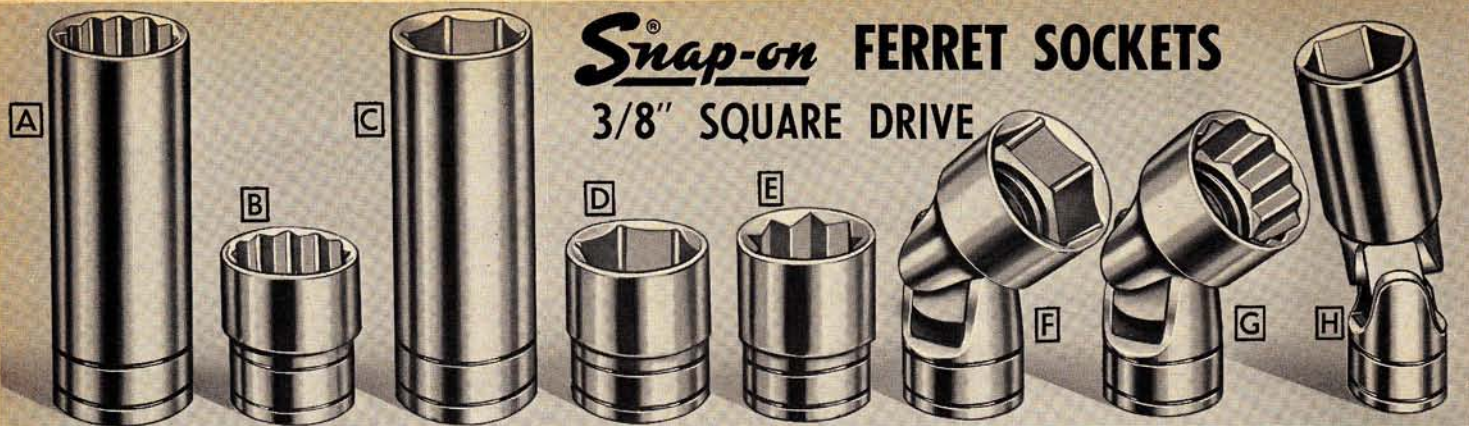
AX-24 Adaptor 23 1/4" Long.

CROWFOOT FLARENUT WRENCHES SINGLE HEX-FLANK DRIVE

(C) Available in sizes from 3/8" to 3/4". Complete description and specs. on page 66.

Snap-on FERRET SOCKETS

3/8" SQUARE DRIVE



"FERRET" LINE PROVIDES A WIDE RANGE OF TYPES AND SIZES

- **Wide Range of Sizes.** All popular sizes are included in each series of "Ferret" sockets and attachments. These sizes, covering a range of 1/4" to 3/8", make the SNAP-ON "Ferret" Line a versatile combination of units. When you need sockets it pays to buy the best—from SNAP-ON.
- **Flank Drive Socket Design.** This revolutionary wrench configuration designed into the SNAP-ON single and double hexagon sockets listed below increases the strength of the socket and also permits an increase in turning torque while protecting the corners of the nut or bolt head. See page 6 for the complete story on SNAP-ON's patented Flank Drive design.
- **Four Way Socket Grip.** Shallow indentations machined in all four sides of the square drive opening allow faster, more convenient interchanging of units as socket grips securely on any of the four sides.
- **Chip-Curled Broaching.** No rough bottoms inside the socket to collect dirt and grease. The smoothly rounded bottoming is formed during the hot broaching process to give you the finest in socket construction.
- **Chamfered Openings.** The slight chamfer around the edge of the wrench opening aids in guiding the socket onto the nut. All of these sockets are thin wall, chrome plated.

FLANK DRIVE

▲ A DEEP DOUBLE HEX

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		
			Socket End	Handle End	Length
1/4"	SF-081	1 1/16"	2 3/4"	1 1/8"	2 1/8"
5/16"	SF-101	1 1/8"	2 3/4"	1 1/8"	2 1/8"
3/8"	SF-121	1 1/8"	2 3/4"	2 1/8"	2 1/8"
7/16"	SF-141	1 1/8"	2 3/4"	2 1/8"	2 1/8"
1/2"	SF-161	1 1/8"	2 3/4"	2 1/8"	2 1/8"
9/16"	SF-181	1 1/8"	2 3/4"	2 1/8"	2 1/8"
5/8"	SF-201	1 1/8"	2 3/4"	2 1/8"	2 1/8"
11/16"	SF-221	1 1/8"	2 3/4"	2 1/8"	2 1/8"
3/4"	SF-241	1 1/8"	2 3/4"	2 1/8"	2 1/8"
13/16"	SF-261	1 1/8"	2 3/4"	2 1/8"	2 1/8"
7/8"	SF-281	1 1/8"	2 3/4"	2 1/8"	2 1/8"
15/16"	SF-301	1 1/8"	2 3/4"	2 1/8"	2 1/8"
1"	SF-321	1 1/8"	2 3/4"	2 1/8"	2 1/8"

FLANK DRIVE

▲ B STANDARD DOUBLE HEX

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		
			Socket End	Handle End	Length
1/4"	F-081	7/16"	2 3/4"	2 1/2"	2 1/2"
5/16"	F-101	7/16"	2 3/4"	2 1/2"	2 1/2"
3/8"	F-121	7/16"	2 3/4"	2 1/2"	2 1/2"
7/16"	F-141	7/16"	2 3/4"	2 1/2"	2 1/2"
1/2"	F-161	7/16"	2 3/4"	2 1/2"	2 1/2"
9/16"	F-181	7/16"	2 3/4"	2 1/2"	2 1/2"
5/8"	F-201	7/16"	2 3/4"	2 1/2"	2 1/2"
11/16"	F-221	7/16"	2 3/4"	2 1/2"	2 1/2"
3/4"	F-241	7/16"	2 3/4"	2 1/2"	2 1/2"
13/16"	F-261	7/16"	2 3/4"	2 1/2"	2 1/2"
7/8"	F-281	7/16"	2 3/4"	2 1/2"	2 1/2"
15/16"	F-301	7/16"	2 3/4"	2 1/2"	2 1/2"
1"	F-321	7/16"	2 3/4"	2 1/2"	2 1/2"

FLANK DRIVE

▲ C DEEP SINGLE HEX

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		
			Socket End	Handle End	Length
1/4"	SFS-081	1 1/16"	2 3/4"	1 1/8"	2 1/8"
5/16"	SFS-101	1 1/8"	2 3/4"	1 1/8"	2 1/8"
3/8"	SFS-121	1 1/8"	2 3/4"	2 1/8"	2 1/8"
7/16"	SFS-141	1 1/8"	2 3/4"	2 1/8"	2 1/8"
1/2"	SFS-161	1 1/8"	2 3/4"	2 1/8"	2 1/8"
9/16"	SFS-181	1 1/8"	2 3/4"	2 1/8"	2 1/8"
5/8"	SFS-201	1 1/8"	2 3/4"	2 1/8"	2 1/8"
11/16"	SFS-221	1 1/8"	2 3/4"	2 1/8"	2 1/8"
3/4"	SFS-241	1 1/8"	2 3/4"	2 1/8"	2 1/8"
13/16"	SFS-261	1 1/8"	2 3/4"	2 1/8"	2 1/8"
7/8"	SFS-281	1 1/8"	2 3/4"	2 1/8"	2 1/8"
15/16"	SFS-301	1 1/8"	2 3/4"	2 1/8"	2 1/8"
1"	SFS-321	1 1/8"	2 3/4"	2 1/8"	2 1/8"

FLANK DRIVE

▲ D STANDARD SINGLE HEX

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		
			Socket End	Handle End	Length
1/4"	FS-081	7/16"	2 3/4"	2 1/2"	2 1/2"
5/16"	FS-101	7/16"	2 3/4"	2 1/2"	2 1/2"
3/8"	FS-121	7/16"	2 3/4"	2 1/2"	2 1/2"
7/16"	FS-141	7/16"	2 3/4"	2 1/2"	2 1/2"
1/2"	FS-161	7/16"	2 3/4"	2 1/2"	2 1/2"
9/16"	FS-181	7/16"	2 3/4"	2 1/2"	2 1/2"
5/8"	FS-201	7/16"	2 3/4"	2 1/2"	2 1/2"
11/16"	FS-221	7/16"	2 3/4"	2 1/2"	2 1/2"
3/4"	FS-241	7/16"	2 3/4"	2 1/2"	2 1/2"
13/16"	FS-261	7/16"	2 3/4"	2 1/2"	2 1/2"
7/8"	FS-281	7/16"	2 3/4"	2 1/2"	2 1/2"
15/16"	FS-301	7/16"	2 3/4"	2 1/2"	2 1/2"
1"	FS-321	7/16"	2 3/4"	2 1/2"	2 1/2"

SPECIAL SOCKETS FOR "WEATHERHEAD" FITTINGS

3/8" SQUARE DRIVE UNITS

Specially designed to service "WEATHERHEAD" fittings on fuel lines, water lines, oil lines, etc., on vehicles of all types, off-the-road machinery, aircraft, air compressors, etc. Their use to turn or to hold these soft metal fittings helps prevent costly, time-wasting breakage.

Size	Stock No.	Max. O.D.	Over-all Length	Size	Stock No.	Max. O.D.	Over-all Length
3/8"	FD-120	3/4"	1 1/4"	1 1/2"	FD-190	1 1/4"	1 1/4"
7/16"	FD-140	1 1/4"	1 1/4"	1 3/4"	FD-210	1 3/4"	1 1/4"
1 1/8"	FD-150	1 1/4"	1 1/4"	2"	FD-220	1 3/4"	1 1/4"
1 1/4"	FD-160	1 1/4"	1 1/4"	2 1/4"	FD-240	1 3/4"	1 1/4"
1 1/2"	FD-170	1 1/4"	1 1/4"	2 3/4"	FD-250	1 3/4"	1 1/4"
1 3/4"	FD-180	1 1/4"	1 1/4"				

See page 102 for Metric sizes and page 105 for British sizes of Ferret (3/8" drive) sockets

▲ E STANDARD DOUBLE SQUARE

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		
			Socket End	Handle End	Length
1/4"	F-308	3/8"	3 1/4"	2 1/2"	2 1/2"
5/16"	F-310	3/8"	3 1/4"	2 1/2"	2 1/2"
3/8"	F-312	1 1/2"	2 1/4"	1 1/8"	1 5/8"
7/16"	F-314	1 1/2"	2 3/4"	1 1/8"	1"
1/2"	F-316	1 1/2"	2 3/4"	1 1/8"	1"
9/16"	F-318	1 1/2"	1"	2 3/4"	1 1/8"
5/8"	F-320	1 1/2"	1 1/8"	3 1/2"	1 1/8"

FLANK DRIVE

F SINGLE HEX "FLEXOCKETS"

Wrench Size	Stock No.	Outside Diameter		
		Socket End	Handle End	Length
5/16"	FS-10A	1 1/2"	1 1/8"	1 3/4"
3/8"	FS-12A	1 1/2"	1 1/8"	1 3/4"
7/16"	FS-14A	1 1/2"	1 1/8"	1 3/4"
1/2"	FS-16A	1 1/2"	1 1/8"	1 3/4"
9/16"	FS-18A	1 1/2"	1 1/8"	1 3/4"
5/8"	FS-20A	1 1/2"	1 1/8"	1 3/4"
11/16"	FS-22	1 1/2"	3/4"	1 3/4"
3/4"	FS-24	1"	3/4"	1 3/4"

FLANK DRIVE

G DOUBLE HEX "FLEXOCKETS"

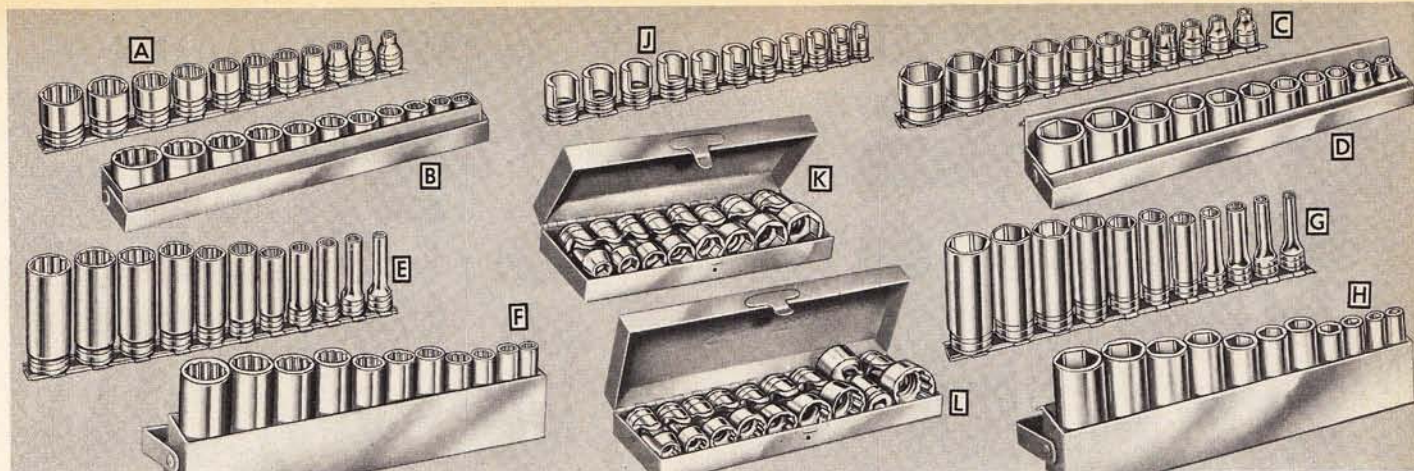
Wrench Size	Stock No.	Outside Diameter		
		Socket End	Handle End	Length
3/8"	FU-12A	1 1/2"	1 1/8"	1 3/4"
7/16"	FU-14A	1 1/2"	1 1/8"	1 3/4"
1/2"	FU-16A	1 1/2"	1 1/8"	1 3/4"
9/16"	FU-18A	1 1/2"	1 1/8"	1 3/4"
5/8"	FU-20A	1 1/2"	1 1/8"	1 3/4"
11/16"	FU-22A	1 1/2"	3/4"	1 3/4"
3/4"	FU-24A	1"	3/4"	1 3/4"
13/16"	FU-26A	1 1/8"	3/4"	2"
7/8"	FU-28A	1 1/2"	3/4"	2"

FLANK DRIVE

H BOLT CLEARANCE "FLEXOCKETS"

These deep type, single hex Flexockets are designed for use where standard length Flexockets cannot be used due to lack of sufficient bolt clearance depth. This bolt clearance is found on caster-camber fittings, manifold bolts and other similar jobs. Will give long, trouble-free service. Have attractive chrome plated finish.

Wrench Size	Stock No.	Outside Diameter			Bolt Clearance Depth	Length
		Socket End	Handle End			
7/16"	FSU-14	5/8"	1 1/8"	1"	1"	2 3/8"
1/2"	FSU-16	2 3/4"	1 1/8"	1"	1"	2 3/8"
9/16"	FSU-18	2 3/4"	1 1/8"	1"	1"	2 3/8"
5/8"	FSU-20	2 3/4"	1 1/8"	1"	1"	2 3/8"
11/16"	FSU-22	2 3/4"	3/4"	1"	1"	2 3/8"



BUY YOUR FERRET SOCKETS IN THESE FULL-RANGE SETS — 3/8" SQUARE DRIVE

(A) 212-F-Y Double Hex Socket Set. 12 sockets F-081 to F-281 (except F-191), on A-269 mounting bracket with 12 socket holders.

(B) 211-F-T Double Hex Socket Set. 11 sockets F-081 to F-281 (except F-111 and F-191), in KTA-232B metal tray.

(C) 211-FS-Y Standard Single Hex Socket Set. 11 standard single hex sockets FS-081 to FS-281 (except FS-191), on A-269 mounting bracket with 11 socket holders.

(D) 211-FS-T Standard Single Hex Socket Set. 11 sockets FS-081 to FS-281 (except FS-191) in KTA-232B metal tray.

KTA-232B Metal Tray. Red enamel finish.

(E) 211-SF-Y Deep Double Hex Socket Set. 11 sockets SF-081 to SF-281 (except SF-191), on A-269 mounting bracket with 11 socket holders.

(F) 211-SF-T Deep Double Hex Socket Set. 11 sockets SF-081 to SF-281 (except SF-191), in KTA-231B metal tray.

(G) 211-SFS-Y Deep Single Hex Socket Set. 11 sockets SFS-081 to SFS-281 (except SFS-191) on A-269 mounting bracket with 11 socket holders.

(H) 211-SFS-T Deep Single Hex Socket Set. 11 sockets SFS-081 to SFS-281 (except SFS-191) in KTA-231B metal tray.

KTA-231B Metal Tray. Red metal finish.

(J) 211-FD-Y Socket Set for WEATHERHEAD Fittings. 11 sockets FD-120 to FD-250 on A-267 mounting bracket with 11 socket holders.

(K) 208-FS-B Single Hex Flexocket Set. Eight Flexockets, FS-10A to FS-24 in KRA-223A metal box (6 7/16" x 2 3/8" x 1 3/16").

208-FS Set. Eight Flexockets FS-10A to FS-24 in plastic tray.

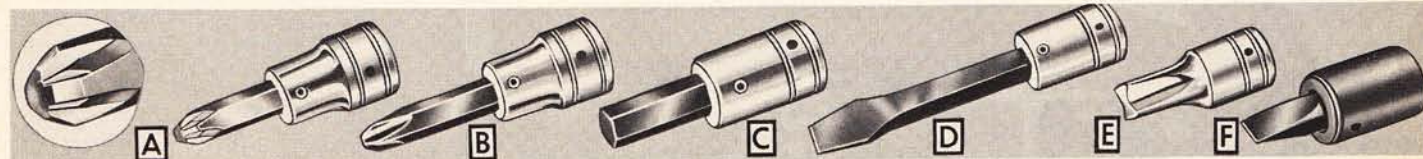
206A-FS Single Hex Flexocket Set. Contains 6 Flexockets, FS-14A to FS-24 in plastic tray.

(L) 209-FU-B Double Hex Flexocket Set. Nine Flexockets, FU-12A to FU-28A in KRA-229 metal box (7 9/16" x 2 3/8" x 1 3/16").

209-FU Set. Above set without box.

206-FU Double Hex Flexocket Set. Contains 6 Flexockets, FU-14A to FU-24A. Packed in a plastic tray.

205-FSU Bolt Clearance Flexocket Set. 5 sockets, FSU-14 through FSU-22.



(A) POZIDRIV® SCREW DRIVERS

Due to the increasing use of POZIDRIV® screws, SNAP-ON has added these units. These bits are somewhat similar to Phillips bits but are not interchangeable with them. POZIDRIV® bits are available in No. 2 and No. 4 sizes and have natural steel finish.

Bit Size	Complete Tool No.	Length	Bit Stock No.	Roll Pin Stock No.
2	FPD-22	2"	FPD-22-2	ESD-303
4	FPD-41	1 1/16"	FPD-41-2	ESD-304

(B) PHILLIPS SCREWS DRIVERS

Bit Size	Complete Tool No.	Length	Bit Stock No.	Roll-Pin Stock No.
2	FP-22A	2 1/16"	FP-22A-2	ESD-303
3	FP-32A	2 1/16"	FP-32A-2	ESD-300
4	FP-41B	1 1/16"	FP-41B-2	ESD-304
4	FP-42B	2 1/16"	FP-42B-2	ESD-304

(C) HEX HEAD SCREW DRIVERS

Hex Size	Complete Tool No.	Length	Bit Stock No.	Roll-Pin Stock No.
1/8"	FA-4A	2 3/32"	TMA-4-2	ME-3F-11
9/64"	FA-4.5A	2 3/32"	TMA-4.5-2	ME-3F-11
5/32"	FA-5A	2 1/16"	FA-5A-2	ESD-322
3/16"	FA-6A	2 1/16"	FA-6A-2	ESD-303
3/16"	FAL-6	3 3/32"	FAL-6-2	ESD-303
1/32"	FA-7A	2 1/16"	FA-7A-2	ESD-303
1/4"	FA-8A	2 1/16"	FA-8A-2	ESD-300
1/4"	FAL-8	3 3/32"	FAL-8-2	ESD-300
5/16"	FA-10B	2 1/16"	FA-10B-2	ESD-304
3/8"	FA-12A	2 1/16"	FA-12A-2	ESD-304

(D) STANDARD SCREW DRIVERS

Blade Size	Complete Tool No.	Length	Bit Stock No.	Roll-Pin Stock No.
1/4" x 1/32"	F-23D	3"	F-23D-2	ESD-304
5/16" x 3/64"	F-25D	3"	F-25D-2	ESD-304
3/8" x 1/16"	F-31D	3 1/16"	F-31D-2	ESD-304

(E) CLUTCH TYPE SCREW DRIVERS

Handle clutch-type screws, also known as "butterfly" or "figure-8" screws, which are becoming increasingly popular for production assembly work of various kinds. Both are one piece units made short to handle work in close quarters. Machined from high quality alloy steel and then carefully heat treated to give exceptional strength and toughness to the tips. Overall length 1 3/4".

F-29A Clutch Screw Driver. Bit diameter 3/8", fits 3/8" and 1 3/32" screws.

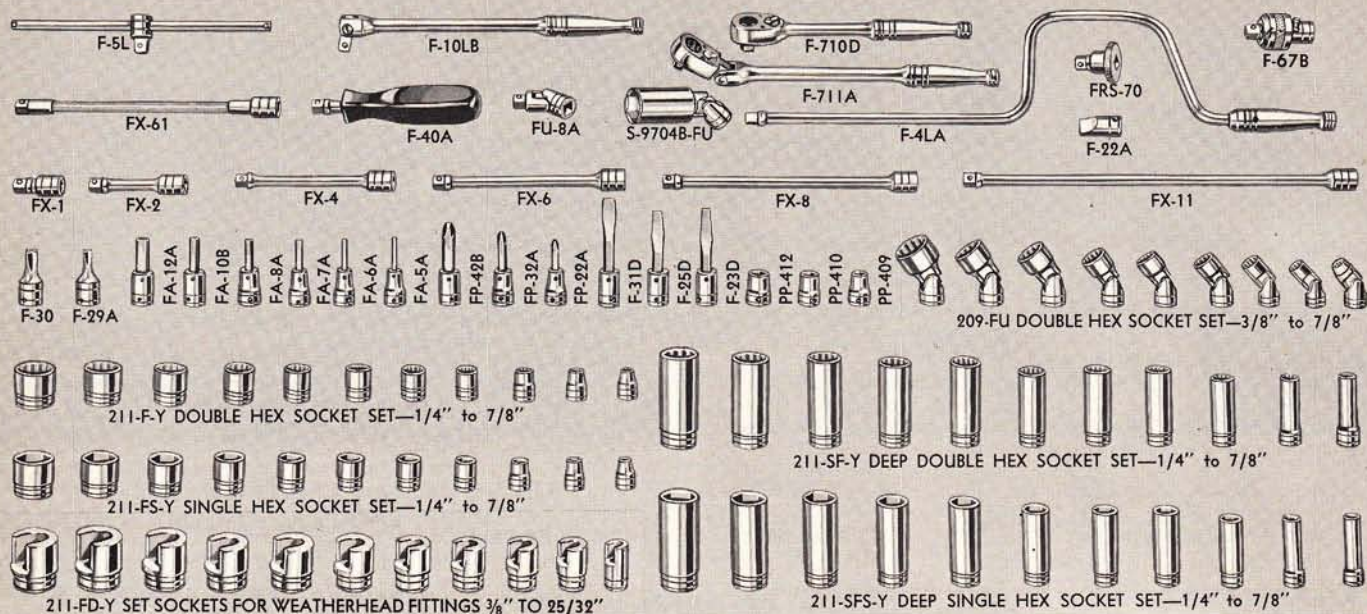
F-30A Clutch Screw Driver. Bit diameter 19/64".

(F) IMPACT SCREW DRIVERS

Recommended for use on the "Ferret" Impak Driver shown on page 39. By limiting the distance of the impact travel, the short bits in these drivers deliver maximum turning power at the screw head slot and lessen the possibilities of bit breakage. Don't use standard drivers for impact work.

Blade Width	Stock No.	Overall Length	Bit No.	Pin No.
1/4"	F-42	1 13/16"	PF-23-2	ESD-300
3/16"	F-52	1 13/16"	PF-25A-2	ESD-304
3/8"	F-62	1 27/32"	PF-31A-2	ESD-304

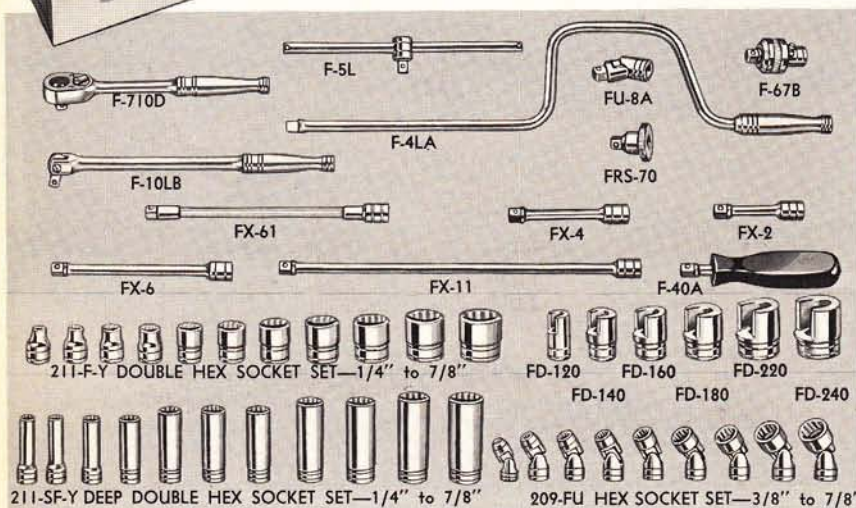
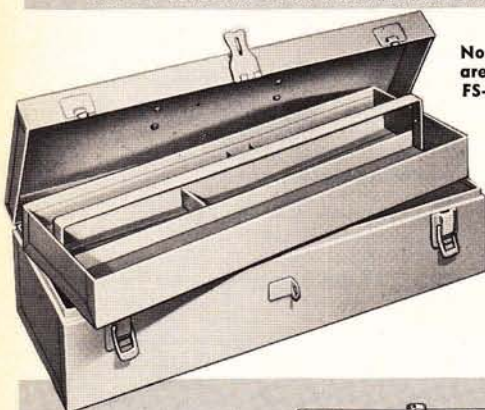
Snap-on FERRET SETS HELP YOU WORK FASTER . . . EASIER



Note: Mounting Brackets and Socket Holders are included with socket sets 211-F-Y, 211-FS-Y, 211-FD-Y, 211-SF-Y and 211-SFS-Y.

SPECIAL METAL BOX FOR THESE TWO SETS

KRA-250 Tool Box. Complete with tote tray. The tray is partitioned to provide convenient separation of sockets, etc., and has a full length top handle. The box is 18½" long, 6½" wide and 4½" deep. It has a suitcase-type handle, sturdy hinges, two spring clasps and hasp for padlock. Red enamel finish.



THERE'S NOTHING BUSIER THAN A GOOD FERRET SET

When you buy a SNAP-ON Ferret set you own the best tools of their kind. They are quality throughout—quality that keeps busy tools in good working condition long after "cheapies" have hit the scrap heap. Behind their fine appearance is something you can't see—the quality of fine alloy steel, the close tolerances of all machining operations and electronically controlled heat treatment. The result is lightweight, tough, long lasting sockets and handles that perform better and cost less in the long run.

(A) 299A-F-B Complete 99-Piece Ferret Set. (Top of Page.) Contents listed at right, complete with KRA-250 Tool Box.

299A-F Set. Above set without the Tool Box.

(B) 250A-F-B Utility 50-Piece Ferret Set. (Center of Page.) Contents listed at right, complete with KRA-250 Tool Box.

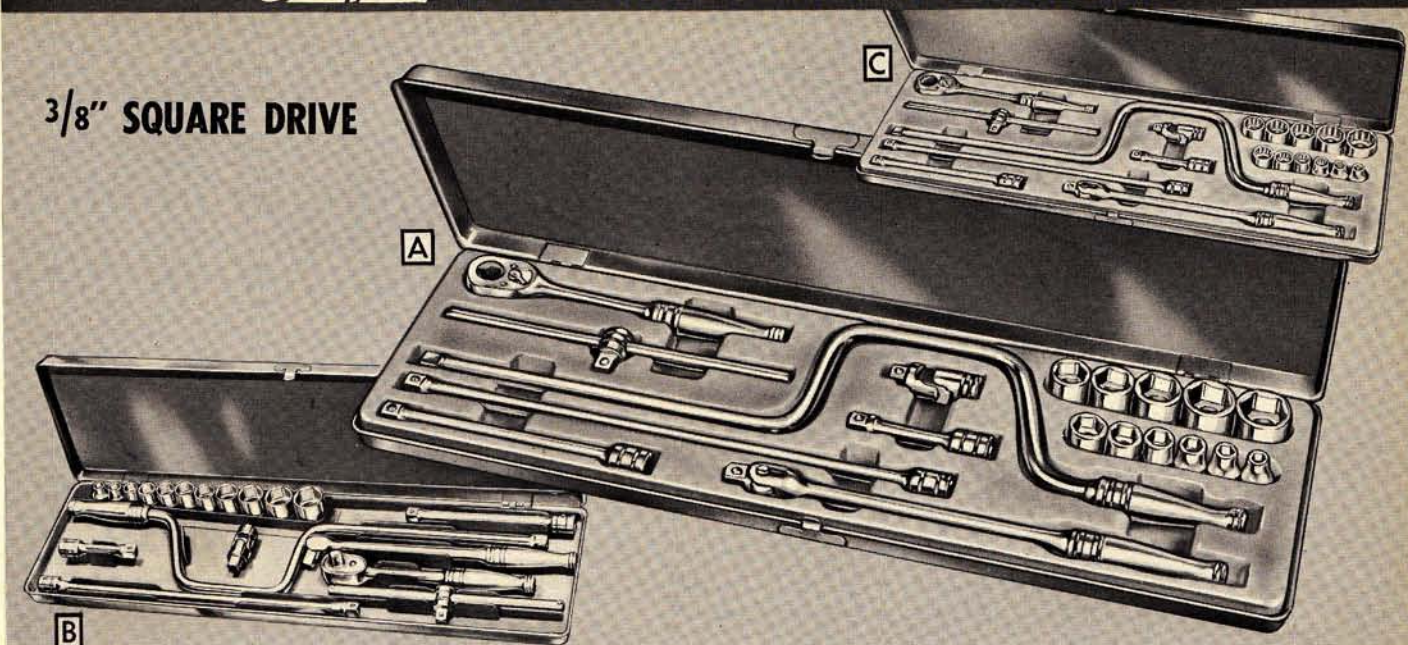
250A-F Set. Above set without the tool box.

CONTENTS OF SETS

Stock No.	Description	299A-F Set	250A-F Set
209-FU	Hex Flexsocket Set	X	X
211-SF-Y	Deep Double Hex Socket Set	X	X
211-SFS-Y	Deep Single Hex Socket Set	X	...
212-F-Y	Double Hex Socket Set	X	X
211-FS-Y	Single Hex Socket Set	X	...
F-4LA	Speeder	X	X
F-10LB	Nut Spinner	X	X
F-22A	Drag Link Socket	X	...
F-23D	¼" Screw Driver	X	...
F-25D	⅝" Screw Driver	X	...
F-29A	⅜" Clutch Screw Driver	X	...
F-30	⅝" Clutch Screw Driver	X	...
F-31D	⅜" Screw Driver	X	...
F-40A	Plastic Handle	X	X
F-5L	Slide Bar	X	X
F-67B	Ratchet Adaptor	X	X
F-710D	Ratchet	X	X
F-711A	Flexible Ratchet	X	...
FA-5A	⅝" Hex Head Wrench	X	...
FA-6A	⅜" Hex Head Wrench	X	...
FA-7A	⅝" Hex Head Wrench	X	...
FA-8A	⅜" Hex Head Wrench	X	...
FA-10B	⅝" Hex Head Wrench	X	...
FA-12A	⅝" Hex Head Wrench	X	...
FD-120	⅝" Socket for Weatherhead	X	X
FD-140	⅝" Socket for Weatherhead	X	X
FD-150	⅝" Socket for Weatherhead	X	...
FD-160	⅝" Socket for Weatherhead	X	X
FD-170	⅝" Socket for Weatherhead	X	...
FD-180	⅝" Socket for Weatherhead	X	X
FD-190	⅝" Socket for Weatherhead	X	...
FD-210	⅝" Socket for Weatherhead	X	...
FD-220	⅝" Socket for Weatherhead	X	X
FD-240	⅝" Socket for Weatherhead	X	X
FD-250	⅝" Socket for Weatherhead	X	...
FP-22A	No. 2 Phillips Screw Driver	X	...
FP-32A	No. 3 Phillips Screw Driver	X	...
FP-42B	No. 4 Phillips Screw Driver	X	...
FRS-70	Ratchet Spinner	X	X
FU-8A	Universal Joint	X	X
FX-1	1½" Extension	X	...
FX-2	3" Extension	X	X
FX-4	4" Extension	X	X
FX-6	6" Extension	X	X
FX-8	8" Extension	X	...
FX-11	12" Extension	X	X
FX-61	Flexextension	X	X
PP-409	⅝" Pipe Plug Socket	X	...
PP-410	⅝" Pipe Plug Socket	X	...
PP-412	⅝" Pipe Plug Socket	X	...
S-9704B-FU	Spark Plug Flexsocket	X	...

Snap-on FLANK DRIVE FERRET WRENCH SETS

3/8" SQUARE DRIVE



Many years ago when we first introduced the 3/8" square drive series of socket wrenches and handles into the SNAP-ON family of fine tools we named them "Ferret" wrenches because like the Ferret, they were very strong, yet very slim and could be used in tight spots other wrenches couldn't reach. Today SNAP-ON "Ferret" socket wrenches and attachments are made better than ever and are the choice of better mechanics everywhere. Here is a popular set avail-

SINGLE HEX SETS

A 219-FSP-B "Ferret" 3/8" Sq. Drive Set. Consisting of the following in a molded plastic tool tray and the KRA-284 Metal Cases.

Handles: F-710D Ratchet; F-4LA Speeder; F-5L Sliding Bar; F-10LB "Nut Spinner"; FX-2, FX-6; FX-11 Extension Bars and FU-8A Universal Joint.

Sockets: Eleven single hex sockets FS-081 to FS-281, (except FS-191) listed on page 36.

219-FSP "Ferret" Set. Above set in plastic tray, but same tools as in the above without the KRA-284 Case.

B 219-FS-B Set. Same tools as in above sets, in KRA-281 Metal Case (with metal partitions).

able in your choice of eleven single or double hexagon Flank Drive sockets and a fine basic selection of wrench handles, packaged in a molded plastic tray. You also have a choice between a metal case designed to hold the molded plastic tool tray or a metal case with welded metal partitions. Both are shown in the above illustrations and each has a baked-on red enamel finish and measures 19 1/4" x 5 5/8" x 1 1/4". Spring clip-type fastener secures case.

DOUBLE HEX SETS

C 219-FP-B "Ferret" 3/8" Sq. Drive Set. Consisting of the following in a molded plastic tool tray and the KRA-284 Metal Case:

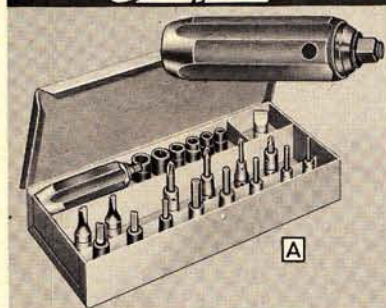
Handles: F-710D Ratchet; F-4LA Speeder; F-5L Sliding Bar; F-10LB "Nut Spinner"; FX-2, FX-6, FX-11 Extension Bars and FU-8A Universal Joint.

Sockets: Eleven Double Hex Sockets—F-081 to F-281 (except F-111 and F-191) on page 36.

219-FP "Ferret" Set. Above set in plastic tray but without the KRA-284 Box.

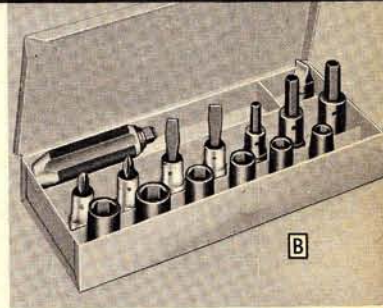
219-F-B Set. Same tools as in the above sets, in KRA-281 Metal Case (with metal partitions).

Snap-on IMPAK DRIVERS AND SETS IN 3/8" AND 1/2" SQUARE DRIVES



These SNAP-ON Impak Driver Sets are extremely useful for handling the tough, ornery jobs. They consist of the popular Impak Driver and an assortment of special impact-type sockets and drivers. In use, the bit or socket is positioned on the screw or nut . . . the Impak Driver is given a short twist to set the working cam and return spring, and the anvil end is then struck a sharp blow with a hammer. The Driver can be set to deliver its rotary impact blow in either direction, and its powerful action will loosen screws and bolts even when they are wedged or rusted tight or will tighten them so they stay tight. You get greater safety, too, as there is less danger of twisting off bolt heads or screws by this method. Instructions are stamped on the tool.

Safety Measure: Wear safety goggles when using Impak Drivers.



A PIT-2120-B "Ferret" 3/8" Sq. Drive Impak Driver Set. Consists of the following units, in KRA-120 Metal Box. Box has red enamel finish.

Stock No.	Description	Stock No.	Description	Stock No.	Description
▲PIT-120	Impak Driver	F-52	3/4" Std. Scr. Dr.	FA-7A	3/8" Hex Hd. Dr.
PF-100	3/4" Hex Soc.	F-62	3/4" Std. Scr. Dr.	FA-8A	3/4" Hex Hd. Dr.
PF-120	3/4" Hex Soc.	F-22A	1 1/4" H.D. Scr. Dr.	FA-10B	3/4" Hex Hd. Dr.
PF-140	3/4" Hex Soc.	FP-22A	No. 2 Phillips Dr.	FA-12A	3/4" Hex Hd. Dr.
PF-160	3/4" Hex Soc.	FP-32A	No. 3 Phillips Dr.	F-29A	Clutch Hd. Dr.
PF-180	3/4" Hex Soc.	FP-41B	No. 4 Phillips Dr.	F-30	Clutch Hd. Dr.
PF-200	3/4" Hex Soc.	FP-42B	No. 4 Phillips Dr.	KRA-120	Metal Box
F-42	1/4" Std. Scr. Dr.	FA-6A	3/8" Hex Head Dr.		

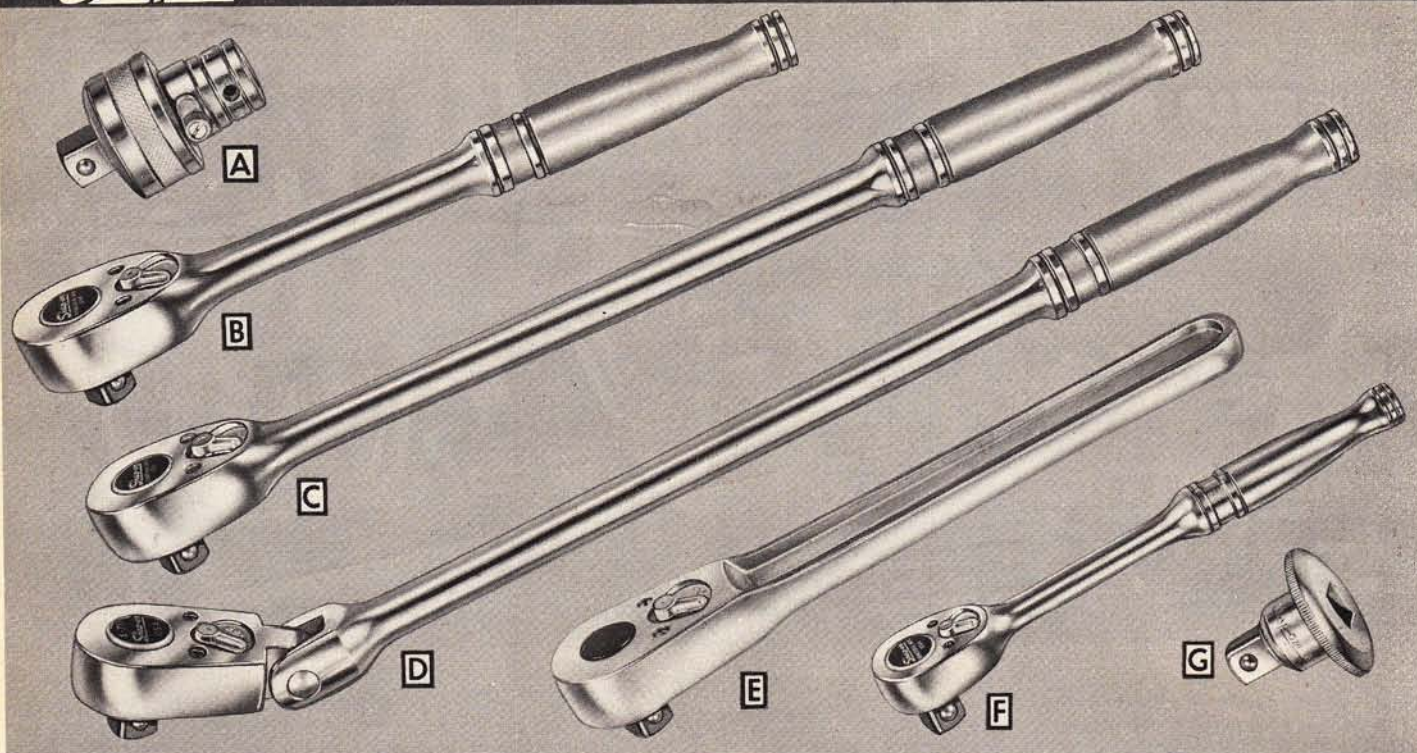
PIT-2120 Set. Above set without the metal box.

B PIT-3160-B Master 1/2" Sq. Drive Impak Driver Set. Consists of the following units, in KRA-120 Metal Box. Box has red enamel finish.

Stock No.	Description	Stock No.	Description	Stock No.	Description
▲PIT-160	Impak Driver	IM-260	1 3/4" Hex Soc.	SP-42	No. 4 Phillips Dr.
IM-160	1/2" Hex Soc.	A-26	3/4" H.D. Scr. Dr.	SA-12A	3/8" Hex Hd. Dr.
IM-180	3/4" Hex Soc.	SW-26	3/4" Std. Scr. Dr.	SA-14A	3/4" Hex Hd. Dr.
IM-200	3/4" Hex Soc.	SW-32	1/2" Std. Scr. Dr.	SA-16A	1/2" Hex Hd. Dr.
IM-220	1 1/4" Hex Soc.	SP-32	No. 3 Phillips Dr.	SA-18A	3/4" Hex Hd. Dr.
IM-240	3/4" Hex Soc.			KRA-120	Metal Box

PIT-3160. Same set as above without metal box.

Snap-on MASTER RATCHETS — 1/2" SQUARE DRIVE



MASTER RATCHETS (1/2" Square Drive)

SNAP-ON ratchet wrenches are used and preferred by professional mechanics and engineers throughout industry. In every way they are fine examples of the precise engineering, machining, heat treating and finishing that characterizes all SNAP-ON products. The reverse ratcheting mechanisms have proved their unbeatable construction through many years of rugged use. Frequent cleaning and oiling will keep the action working freely. These tools are made of high grade alloy steel, heat treated to give years of service, chrome plated for lasting appearance.

- ▲ **A 67C Ratchet Adaptor.** This ratcheting adaptor converts any combination of handle, extension and socket into a ratcheting tool. Convenient side button reverses action. This unit can be used on many jobs where other "Master" ratchets cannot operate. Also extremely useful in combination with 1/2" sq. drive "Torquometers." 2 1/16" long, 1 1/8" outside diameter.
- ▲ **B SL-710 Master "Supreme" Ratchet.** The favorite 1/2" square drive ratchet with thousands of mechanics who have made it the basic wrench handle in their tool kit. It has a 32-tooth reversible ratchet action for efficient operation where handle movement is limited. Gets a new bite with only a 12-degree handle swing. Overall length is 10 1/4" . . . just right to work without clearance problems on almost any job and afford all the turning power needed to get the job done. Head is 1 5/8" wide, 2 5/32" thick.
- ▲ **C S-710 Master Ratchet.** Same tool as above but with a 24-tooth gear action. Works with only a 15-degree handle swing.
- ▲ **D SL-715 Master "Supreme" Ratchet.** Identical to the SL-710 Model above, but with an overall length of 15". Gives you the benefit of a longer reach to service hard-to-get-at jobs and increased leverage for the tough ones. Has the 32-tooth reversible gear action.
- ▲ **E S-715 Master Ratchet.** Same as the 15" long ratchet SL-715 above but with a 24-tooth reversible gear action.

D S-711A Flex Ratchet. Saves time on jobs close to obstructions, excellent for spark plug work. The 24-tooth ratchet action is reversible and the flexible head has spring to hold it at desired angle for placement on the job. Length is 17 1/4". Head is 2 5/32" deep and 1 5/8" diam. You will find this tool a time saver on many jobs where other tools are inefficient.

- ▲ **F S-71 Master Ratchet.** An old time favorite with many tool users. Has 24 tooth ratchet action, works with only a 15-degree handle swing. Pawls, gear drive and plate have gunmetal finish and the handle and head unit is chrome plated. Overall length is 9 5/8". Head width is 1 5/8", head depth 3/4". This model does not have the gear dust cap.

F SF-710A Compact Master Ratchet. Gives you maximum efficiency in tight work areas. Only 7 7/16" long and with a head only 1 1/8" wide and 9/16" thick this new 1/2" square drive ratchet gets into those difficult areas to work where standard 1/2" drive ratchets cannot be used. Twenty-tooth reversible ratchet action takes a new bite with only an 18-degree handle swing.

G LRS-70 Ratchet Spinner. Fits in between the ratchet and the socket so nuts may be spun fast by hand without the need of moving the ratchet handle. Milled edge provides good grip.

RATCHET REPAIR KITS for SNAP-ON RATCHETS

These kits enable you to service your own Snap-on ratchets without the inconvenience of waiting for your dealer, or sending the ratchet to a repair center. The parts in these kits will restore your ratchets to like-new condition.

RKR-71 Repair Kit consists of parts necessary to repair the S-71 Ratchet.

RKR-710 Repair Kit consists of parts necessary to repair the S-710 Ratchet, and S-715 Ratchet.

RKR-711 Repair Kit consists of parts necessary to repair the SL-710 Ratchet, SL-715 Ratchet and S-711A Ratchet.

Snap-on

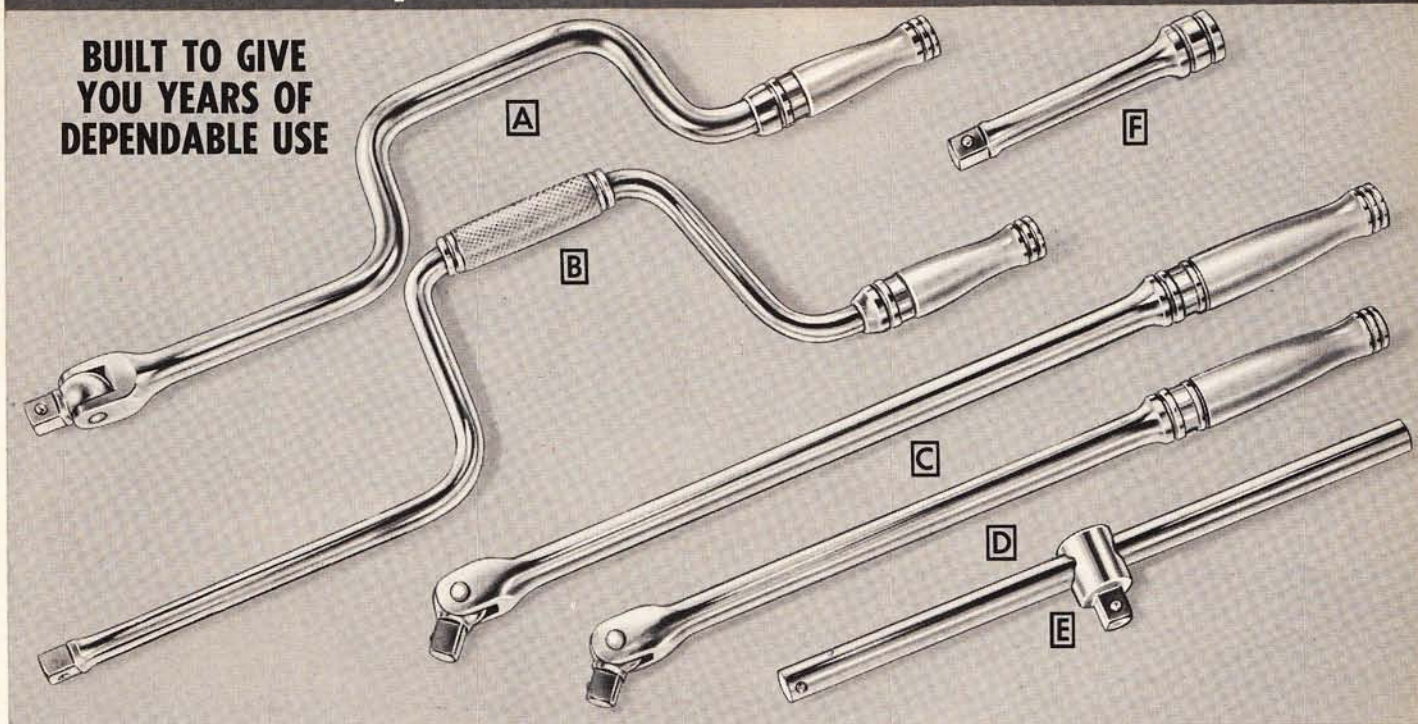
Features That Give You Most Value For Your Money

- **Palm-Grip design handles** give a secure hand grip and better appearance.
- **You have a choice of eight different SNAP-ON "Master" ratchet handles and ratchet adaptor.**
- **SNAP-ON Master Ratchets with the exception of S-71 have a dust cover plate** which protects the mechanism from entrance of dirt that could cause excess wear.
- **High Quality Steel.** Steels of differing alloy analysis are used in the manufacture of SNAP-ON tools. Each is carefully selected to impart the most desirable qualities of hardness toughness, and durability according to the type of tool and its use.
- **Heat Treatment.** Only the most advanced processes are good enough for SNAP-ON tools and furnaces of several types are used to impart the exact necessary degree of hardness, toughness and strength to every part.
- **Appearance.** SNAP-ON handles and sockets are chromium plated and polished to a lustrous rust resistant finish. They look like quality tools, they have the "feel" of quality — on the job they prove they are quality. Compare them with all others and you'll want SNAP-ON socket wrenches.
- **SNAP-ON guarantee protects you . . .** any wrench proving defective in material or workmanship will be replaced.

IT PAYS TO OWN THE VERY BEST AND SNAP-ON MAKES THE VERY BEST TOOLS YOU CAN BUY.

MASTER 1/2" Sq. DRIVE HANDLES AND ATTACHMENTS

**BUILT TO GIVE
YOU YEARS OF
DEPENDABLE USE**



"NUT SPINNER" SPEEDER

▲ **SN-4A "Nut Spinner" Speeder.** A speeder, spinner and offset handle, in one. Straighten the hinged head to spin nut down and bend into offset position to tighten the nut. Shank length is 6 3/8", overall length 17 1/4". Sweep radius is 2 3/4".

SPEEDER HANDLE

▲ **B S-4 Speeder Handle.** The fastest handle to use where nuts are out in the open. Both handle grips swivel for easy operation. Shank length is 8", overall length 19 1/2", radius of sweep 4 7/8". Chrome plated.

SLIDING TEE HANDLE

▲ **E S-12L Sliding Tee Handle.** A friction ball in the head contacts the center groove to make a practical Tee Handle. The head slides to end of the bar to form an efficient offset handle. Head is 1 3/4" deep. Chrome plated finish. 12" long, 5/8" diameter.

"NUT SPINNERS"

"Nut Spinners". The hinged socket receiving end allows you to work the tool in any position to clear obstructions and an inner spring holds the head at desired angle for easy placement on the job. Long handles give plenty of leverage for tightening nuts or breaking them loose. Straighten out the hinge and you have a spinner handle. This tool will prove to be a valuable time saver. Chrome plated.

▲ **D SN-15A "Nut Spinner"** 15" long

▲ **C SN-18A "Nut Spinner"** 18" long

▲ **SN-24B "Nut Spinner"** ... 24" long

EXTENSION BARS

▲ **F Extension Bars.** Made in seven lengths to give you greatest flexibility of use for your Master tool set. They give you that extra amount of reach that often means the difference between a tough job and an easy job. These tools are chrome plated.

SX-2 Ext. Bar ... 2" long

SX-3 Ext. Bar ... 3 1/2" long

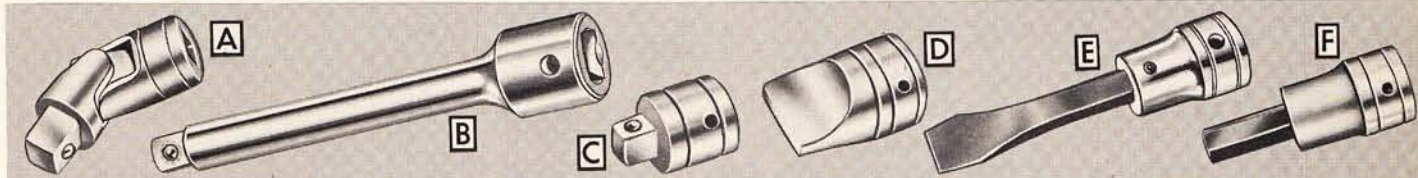
SX-5 Ext. Bar ... 5" long

SX-10 Ext. Bar ... 10" long

SX-20 Ext. Bar ... 20" long

SX-24 Ext. Bar ... 24" long

SX-36 Ext. Bar ... 36" long



ATTACHMENTS FOR MASTER HANDLES (1/2" Square Drive)

LONG ADAPTORS (1/2" to 3/8" drive)

These long adaptors convert 1/2" square drive handles to 3/8" drive sockets. They are extremely useful on such jobs as automatic transmission work where the use of a 1/2" drive impact wrench can speed the work but clearances only permit entrance of 3/8" drive sockets. The three adaptors provide the best extension to reach past obstructions to the nut.

CAUTION: These adaptors and 3/8" drive thin-wall sockets are not designed for impact use on high torque applications.

AX-4 Adaptor. 5" long. 1/2" female—3/8" male.

AX-12 Adaptor. 12" long. 1/2" female—3/8" male.

AX-24 Adaptor. 23 1/4" long. 1/2" female—3/8" male.

UNIVERSAL JOINT

S-8 Universal Joint. One of the biggest time-savers you can own when you need to work around obstructions. Inner spring holds joint at any angle for easy application to the job without interfering with the swivel action of the tool in use. 1/2" square drive, 2 3/4" long.

HANDLE ADAPTORS

Interchange 3/8", 3/4" and 5/8" square drive units with 1/2" drive units.

HD-1 ... 1/2" female—3/8" male
A-2 ... 3/8" female—1/2" male
A-4 ... 1/2" female—3/4" male
LA-12 ... 1/2" female—3/4" male
LA-62 ... 3/4" female—1/2" male

DRAG LINK ADJUSTERS

Designed to turn slotted nuts on steering gear assemblies, drag links and tie rods. 1/2" square drive. 11 1/16" long.

A-15 Adjuster. 1 7/32" x .150" blade.

A-17 Adjuster. 1 5/16" x .150" blade.

A-26 Adjuster. 3/4" x .109" blade.

STANDARD TIP SCREWDRIVERS

Bit Size	Complete Tool		Bit Only Stock No.	Roll Pin No.
	Stock No.	Length		
7/16" x 1/16"	SW-28	3 1/16"	SW-284A-2	ESD-310
1/2" x 1/16"	SW-32	3 1/16"	SW-324A-2	ESD-310
3/8" x 3/64"	SW-40	3 3/4"	SW-40-2	ESD-311

HEX HEAD WRENCHES

Hex Size	Complete Tool		Bit Only Stock No.	Roll Pin No.
	Stock No.	Length		
5/16"	SA-10A	2 3/8"	FA-10B-2	ESD-329
3/8"	SA-12A	2 1/4"	SA-12A-2	ESD-310
7/16"	SA-14A	2 1/8"	SA-14A-2	ESD-311
1/2"	SA-16A	3 1/16"	SA-16A-2	ESD-311
9/16"	SA-18A	3 1/16"	SA-18A-2	ESD-311
5/8"	SA-20A	3 11/32"	LAW-120A-2	ESD-306



Snap-on[®] MASTER LINE SOCKETS with 1/2" Square Drive

SUPERIOR FEATURES OF Snap-on SOCKET WRENCHES

Flank Drive Design. Master (1/2" square drive) single and double hex sockets have the patented SNAP-ON Flank Drive configuration. Read all about this revolutionary wrench development on page 6.

Chamfered Openings. All SNAP-ON sockets have a chamfered bevel on the wrench opening to aid in guiding the socket onto the nut.

Size Accuracy. Tolerances are very closely held to give a snug fit on the nut. Close tolerances of square drive openings and handle drive squares eliminates socket wobble while affording easy interchange of units.

Thin, Straight Walled Sockets. Special alloy steels permit sockets having great strength, yet with thin straight walls that work close

to obstructions. The thin walls permit close control of heat treatment penetration. You get strength and light weight... important factors in every day use.

Hot Broaching. Examine a SNAP-ON socket and note the smooth, clean cut wrench corners and walls. This is the result of broaching while the socket is heated and contributes strength as well as accuracy to the tool.

FLANK DRIVE EXTRA DEEP SOCKETS

Time savers when you have to reach nuts that are set down deeply over protruding bolts, for spring "U" bolts etc. The extra depth gives you the needed clearance and the "FLANK DRIVE" opening provides added socket strength and turning power.

Wrench Size	DOUBLE HEX A Stock No.	SINGLE HEX B Stock No.	Bolt Clearance	O.D. Socket End	O.D. Drive End	Length
3/8"	▲S-121	▲TS-121	2 3/8"	3 1/4"	7/8"	3 1/4"
7/16"	▲S-141	▲TS-141	2 3/8"	2 1/2"	7/8"	3 1/4"
1/2"	▲S-161	▲TS-161	2 3/8"	2 3/4"	7/8"	3 1/4"
9/16"	▲S-181	▲TS-181	2 3/8"	2 3/4"	7/8"	3 1/4"
5/8"	▲S-201	▲TS-201	2 3/8"	2 3/4"	7/8"	3 1/4"
1 1/16"	▲S-221	▲TS-221	2 3/8"	3 1/2"	2 3/4"	3 1/4"
3/4"	▲S-241	▲TS-241	2 3/8"	3 1/2"	3 1/2"	3 1/4"
1 1/8"	▲S-261	▲TS-261	2 3/8"	1 1/2"	1 1/2"	3 1/4"
7/8"	▲S-281	▲TS-281	2 3/8"	1 3/4"	1 1/2"	3 1/4"
1 1/16"	▲S-301	▲TS-301	2 3/8"	1 3/4"	1 3/4"	3 1/4"
1"	▲S-321	▲TS-321	2 3/8"	1 1/2"	1 3/4"	3 1/4"
1 1/16"	▲S-341	▲TS-341	2 3/8"	1 3/4"	1 3/4"	3 1/4"
1 1/8"	▲S-361	▲TS-361	2 3/8"	1 1/2"	1 3/4"	3 1/4"
1 1/16"	▲S-381	▲TS-381	2 3/8"	1 3/8"	1 3/4"	3 1/4"
1 1/4"	▲S-401	▲TS-401	2 3/8"	1 1/2"	1 3/4"	3 1/4"
1 3/16"	▲S-421	▲TS-421	2 3/8"	1 3/4"	1 1/2"	3 1/4"
1 3/8"	▲S-441	▲TS-441	2 3/8"	1 3/16"	1 3/4"	3 1/4"
1 7/16"	▲S-461	▲TS-461	2 3/8"	1 13/16"	1 3/8"	3 1/4"
1 1/2"	▲S-481	▲TS-481	2 3/8"	2"	1 15/16"	3 1/4"

FLANK DRIVE STANDARD LENGTH SOCKETS

Thin straight walls allow entry into tight spots. Chamfered openings help guide socket over the nut or bolt head. Carefully centered hot broaching equalizes wall strength. Double hex units give short turning arc, single hex are preferred for use on soft metal nuts.

Wrench Size	DOUBLE HEX C Stock No.	SINGLE HEX D Stock No.	Bolt Clearance	O.D. Socket End	O.D. Drive End	Length
3/8"	▲SW-121	▲TW-121	7/8"	3/4"	7/8"	1 1/2"
7/16"	▲SW-141	▲TW-141	7/8"	4 1/4"	7/8"	1 1/2"
1/2"	▲SW-161	▲TW-161	7/8"	2 3/4"	7/8"	1 1/2"
9/16"	▲SW-181	▲TW-181	7/8"	3 1/4"	7/8"	1 1/2"
5/8"	▲SW-201	▲TW-201	7/8"	2 3/4"	7/8"	1 1/2"
1 1/16"	▲SW-221	▲TW-221	7/8"	3 1/2"	2 3/4"	1 1/2"
3/4"	▲SW-241	▲TW-241	7/8"	1 3/4"	3 1/2"	1 1/2"
1 1/8"	▲SW-261	▲TW-261	7/8"	1 1/2"	1 1/2"	1 1/2"
7/8"	▲SW-281	▲TW-281	7/8"	1 3/4"	1 1/2"	1 1/2"
1 1/16"	▲SW-301	▲TW-301	7/8"	1 3/4"	1 3/4"	1 1/2"
1"	▲SW-321	▲TW-321	7/8"	1 1/2"	1 1/2"	1 1/2"
1 1/16"	▲SW-341	▲TW-341	1"	1 3/4"	1 3/8"	1 3/8"
1 1/8"	▲SW-361	▲TW-361	1 1/8"	1 1/2"	1 3/8"	1 3/4"
1 1/16"	▲SW-381	▲TW-381	1 1/8"	1 3/8"	1 3/8"	1 3/4"
1 1/4"	▲SW-401	▲TW-401	1 1/4"	1 1/2"	1 3/8"	1 3/8"
1 3/16"	▲SW-421	▲TW-421	1 1/4"	1 3/4"	1 1/2"	1 3/8"
1 3/8"	▲SW-441	▲TW-441	1 3/8"	1 3/8"	1 3/4"	2 1/8"
1 7/16"	▲SW-461	▲TW-461	1 3/8"	1 3/8"	1 3/8"	2 1/4"
1 1/2"	▲SW-481	▲TW-481	1 3/8"	2"	1 13/16"	2 1/4"

DOUBLE SQUARE SOCKETS

Accurately broached openings allow maximum working convenience where handle movement is limited.

Wrench Size	Stock No.	Bolt Clearance	O.D. Socket End	O.D. Drive End	Length
3/8"	▲SW-412	7/8"	2 3/4"	7/8"	1 1/2"
7/16"	▲SW-414	7/8"	3 1/4"	7/8"	1 1/2"
1/2"	▲SW-416	7/8"	2 3/4"	7/8"	1 1/2"
9/16"	▲SW-418	7/8"	3 1/2"	2 3/4"	1 1/2"
5/8"	▲SW-420	7/8"	1 1/4"	1"	1 1/2"
1 1/16"	▲SW-422	7/8"	1 3/4"	1 1/8"	1 1/2"
3/4"	▲SW-424	7/8"	1 1/2"	1 3/8"	1 1/2"
1 1/8"	▲SW-426	1"	1 3/4"	1 3/8"	1 3/8"
7/8"	▲SW-428	1 1/8"	1 1/2"	1 3/8"	1 3/4"
1"	▲SW-432	1 1/4"	1 1/2"	1 3/8"	1 7/8"

FLANK DRIVE FLEXOCKETS

Hexagon "Flexockets" are extremely compact, short coupled, work freely from a wide angle to reach nuts in tight places. Have side locking hole to adapt them to industrial type handles.

Wrench Size	DOUBLE HEX F Stock No.	SINGLE HEX G Stock No.	O.D. Socket End	O.D. Drive End	Overall Length
9/16"	▲SUD-18	SU-18	15/16"	15/16"	2 7/64"
5/8"	▲SUD-20	SU-20	15/16"	15/16"	2 15/32"
11/16"	▲SUD-22	SU-22	1 3/64"	1 3/64"	2 9/16"
3/4"	▲SUD-24	SU-24	1 1/8"	1 1/8"	2 7/8"
13/16"	▲SUD-26	SU-26	1 3/16"	1 1/8"	2 15/16"
7/8"	▲SUD-28	SU-28	1 1/4"	1 1/8"	2 15/16"
15/16"	—	SU-30	1 5/16"	1 1/8"	3"

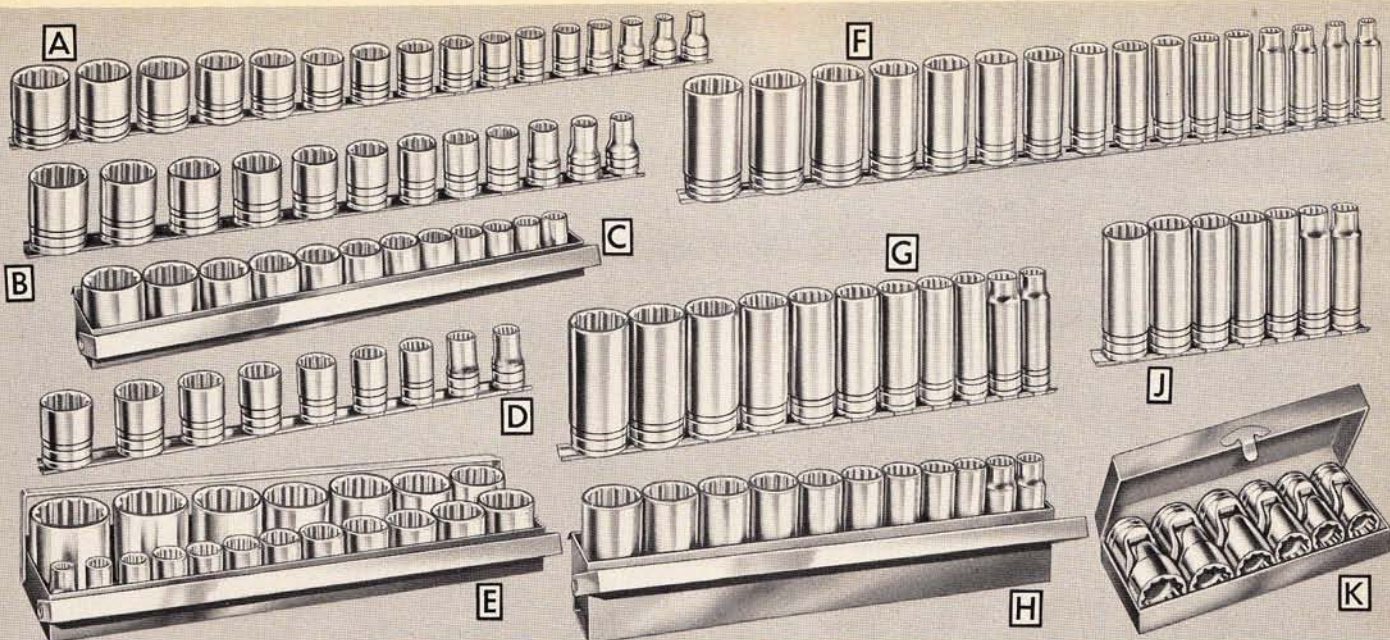
Metric sizes of sockets are listed on pages 52, 53 and 54. British sizes on page 57.

1/2" SQ. DRIVE SOCKETS FOR "WEATHERHEAD" FITTINGS

Designed to simplify service work when turning the larger WEATHERHEAD fittings such as those on both air and hydraulic brake lines in trucks, busses, aircraft and off-the-road machinery, etc. Smaller fittings are serviced by the 3/8" square drive sockets listed on page 36. Service the soft metal fittings with these sockets, and prevent costly breakage.



Size	Stock No.	Max. O.D.	Overall Length
7/8"	WH-280	1 3/8"	1 13/16"
29/32"	WH-290	1 7/16"	1 13/16"
15/16"	WH-300	1 1/2"	1 13/16"



1/2" SQ. DRIVE SETS SHOWN HAVE DOUBLE HEX SOCKETS SIMILAR SETS IN SINGLE HEX ARE LISTED BELOW

DOUBLE HEX SOCKET SETS

- A** 316-SW-Y Set. 16 Sockets with A-266 Mounting Bracket and socket holders.
B 312-SW-Y Set. 12 Sockets with A-270 Mounting Bracket and socket holders.
C 312B-SW-T Set. 12 Sockets in KTA-215A Tray.
D KTA-215A Metal Tray only.
E 309-SW-Y Set. 9 Sockets with A-267 Mounting Bracket and socket holders.
F 319-SW-T Set. 19 Sockets in KTA-219 Tray.
G 319-SW Set. Above set without tray.
H KTA-219 Metal Tray only.

SINGLE HEX SOCKET SETS

- I** 319-TW-T Set. 19 Sockets in KTA-219 Tray.
J 319-TW Set. Above set without tray.
K 316-TW-Y Set. 16 Sockets with A-266 Mounting Bracket and socket holders.
L 312-TW-Y Set. 12 Sockets with A-270 Mounting Bracket and socket holders.
M 312-TW-T Set. 12 Sockets in KTA-215A Tray.
N 309-TW-Y Set. 9 Sockets with A-267 Mounting Bracket and socket holders.

DEEP DOUBLE HEX SOCKET SETS

- O** 319-S Set. 19 Sockets, tools only. Will fit on A-268 Bracket listed below.
P 316-S-Y Set. 16 Sockets with A-266 Mounting Bracket and socket holders.
Q 311-S-Y Set. 11 Sockets with A-267 Mounting Bracket and socket holders.
R 311A-S-T Set. 11 Sockets in KTA-240A Tray.
S KTA-240A Metal Tray only.
T 307-S-Y Set. 7 Sockets with A-265 Mounting Bracket and socket holders.

DEEP SINGLE HEX SOCKET SETS

- U** 319-TS Set. 19 Sockets, tools only. Will fit on A-268 Bracket listed below.
V 316-TS-Y Set. 16 Sockets with A-266 Mounting Bracket and socket holders.
W 311-TS-T Set. 11 Sockets in KTA-240A Tray.
X 311-TS-Y Set. 11 Sockets with A-267 Mounting Bracket and socket holders.
Y 307-TS-Y Set. 7 Sockets with A-265 Mounting Bracket and socket holders.

FLEXOCKET SETS

- Z** 360-SUD-B Double Hexagon Flexocket Set. SUD-18 to SUD-28 in KRA-206 box.
AA 306-SUD Set. Above set, tools only.
AB 306-SU-B Single Hexagon Flexocket Set. 6 Sockets SU-18 thru SU-28 in KRA-206 metal box.
AC 306-SU Set. Above set, tools only.
AD KRA-206 Metal Box only.

SQUARE SOCKET SET

- AE** 310A-SQ Set. 10 Sockets, SW-412 thru SW-432.

CONTENTS OF 1/2" SQUARE DRIVE SOCKET SETS

DOUBLE HEX SETS						SINGLE HEX SETS					
Socket No.	319-SW-T	316-SW-Y	312B-SW-T	312-SW-Y	309-SW-Y	Socket No.	319-TW-T	316-TW-Y	312-TW-T	312-TW-Y	309-TW-Y
SW-121	X	X	—	—	—	TW-121	X	X	—	—	—
SW-141	X	X	X	X	—	TW-141	X	X	X	X	—
SW-161	X	X	X	X	X	TW-161	X	X	X	X	X
SW-181	X	X	X	X	X	TW-181	X	X	X	X	X
SW-201	X	X	X	X	X	TW-201	X	X	X	X	X
SW-221	X	X	X	X	X	TW-221	X	X	X	X	X
SW-241	X	X	X	X	X	TW-241	X	X	X	X	X
SW-261	X	X	X	X	X	TW-261	X	X	X	X	X
SW-281	X	X	X	X	X	TW-281	X	X	X	X	X
SW-301	X	X	X	X	X	TW-301	X	X	X	X	X
SW-321	X	X	X	X	X	TW-321	X	X	X	X	X
SW-341	X	X	X	X	—	TW-341	X	X	X	—	—
SW-361	X	X	X	X	—	TW-361	X	X	X	—	—
SW-381	X	X	—	—	—	TW-381	X	X	—	—	—
SW-401	X	X	—	—	—	TW-401	X	X	—	—	—
SW-421	X	X	—	—	—	TW-421	X	X	—	—	—
SW-441	X	—	—	—	—	TW-441	X	—	—	—	—
SW-461	X	—	—	—	—	TW-461	X	—	—	—	—
SW-481	X	—	—	—	—	TW-481	X	—	—	—	—
Tool Tray	KTA-219	—	KTA-215A	—	—	Tool Tray	KTA-219	—	KTA-215A	—	—
Bracket	—	A-266	—	A-270	A-267	Bracket	—	A-266	—	A-270	A-267

DEEP DOUBLE HEX SETS						DEEP SINGLE HEX SETS					
Socket No.	319-S	316-S-Y	311A-S-T	311-S-Y	307-S-Y	Socket No.	319-TS	316-TS-Y	311-TS-T	311-TS-Y	307-TS-Y
S-121	X	X	—	—	—	TS-121	X	X	—	—	—
S-141	X	X	—	—	—	TS-141	X	X	—	—	—
S-161	X	X	X	X	X	TS-161	X	X	X	X	X
S-181	X	X	X	X	X	TS-181	X	X	X	X	X
S-201	X	X	X	X	X	TS-201	X	X	X	X	X
S-221	X	X	X	X	X	TS-221	X	X	X	X	X
S-241	X	X	X	X	X	TS-241	X	X	X	X	X
S-261	X	X	X	X	X	TS-261	X	X	X	X	X
S-281	X	X	X	X	X	TS-281	X	X	X	X	X
S-301	X	X	X	X	—	TS-301	X	X	X	X	—
S-321	X	X	X	X	—	TS-321	X	X	X	X	—
S-341	X	X	X	X	—	TS-341	X	X	X	X	—
S-361	X	X	X	X	—	TS-361	X	X	X	X	—
S-381	X	X	—	—	—	TS-381	X	X	—	—	—
S-401	X	X	—	—	—	TS-401	X	X	—	—	—
S-421	X	X	—	—	—	TS-421	X	X	—	—	—
S-441	X	—	—	—	—	TS-441	X	—	—	—	—
S-461	X	—	—	—	—	TS-461	X	—	—	—	—
S-481	X	—	—	—	—	TS-481	X	—	—	—	—
Tool Tray	—	—	KTA-240A	—	—	Tool Tray	—	—	KTA-240A	—	—
Bracket	—	A-266	—	A-267	A-265	Bracket	—	A-266	—	A-267	A-265

CHROME PLATED MOUNTING BRACKETS AND SOCKET HOLDERS

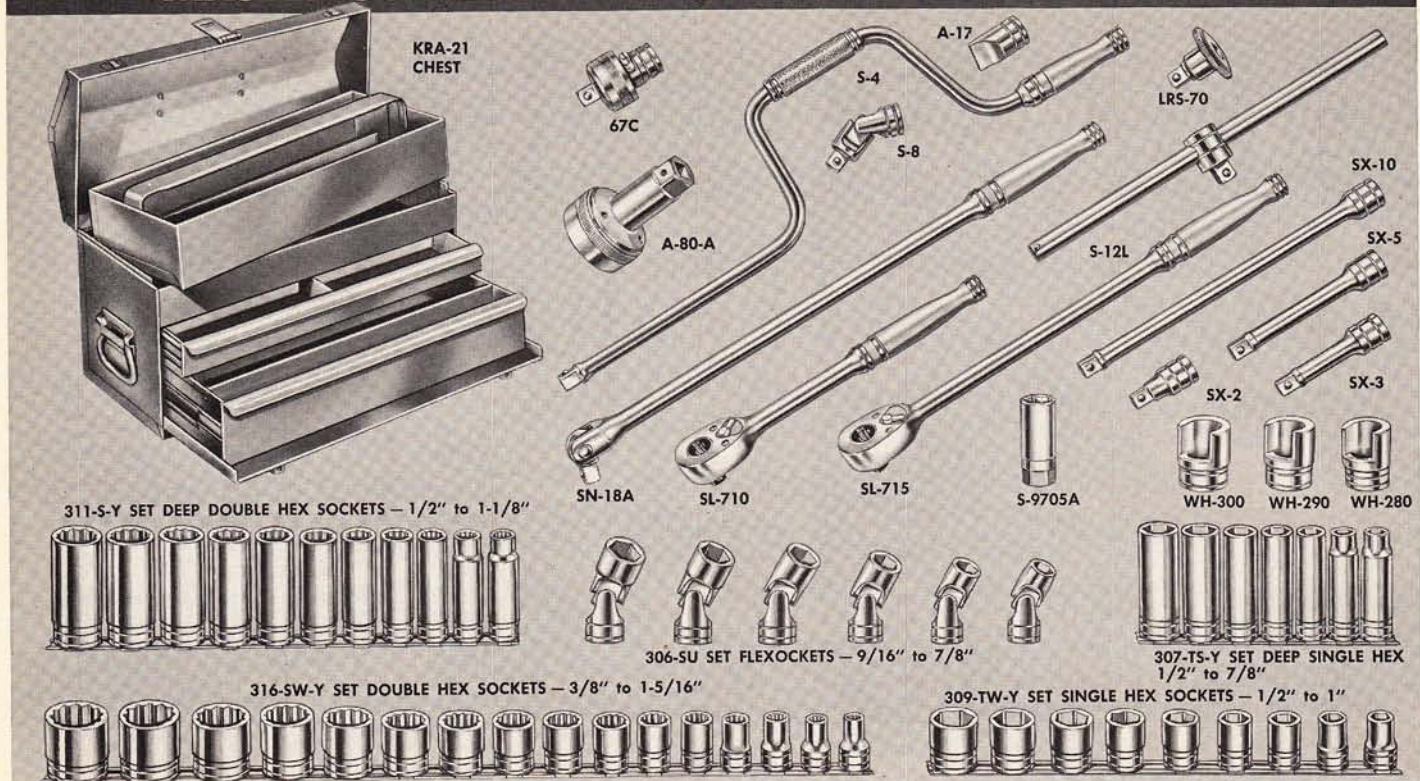


- A-265 Bracket.** 7 3/8" long, has 2 screw holes.
A-269 Bracket. 10 3/8" long, has 2 screw holes.
A-267 Bracket. 13 3/8" long, has 2 screw holes.

- A-270 Bracket.** 16 3/8" long, has 3 screw holes.
A-266 Bracket. 23 3/8" long, has 4 screw holes.
A-268 Bracket. 31 1/2" long, has 5 screw holes.

HOLDERS ARE SOLD IN PACKAGES OF 100
A-271 for 1/4" drive units.
A-272 for 3/8" drive units.
A-273 for 1/2" drive units.
A-274 for 3/4" drive units.

MASTER SOCKET WRENCH SETS—1/2" SQUARE DRIVE



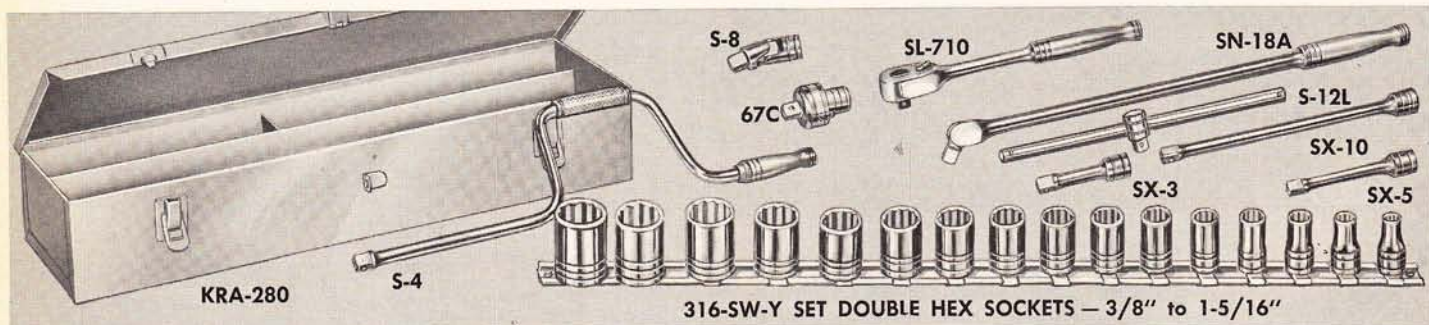
367-M-B MASTER "GENERAL" SET IN KRA-21 MECHANIKIT—67 TOOLS

367-M-B Master General Set. Here is our most complete set of Master (1/2" square drive) wrenches. Assembled for the mechanic who wants a full range of socket sizes and types together with a wide selection of handle equipment. This versatile assortment of matched units contributes speed and convenience to the overall proficiency of top notch mechanics in every type of service and maintenance work. Treat yourself to greater working ease with this outstanding set of SNAP-ON quality wrenches.

The KRA-21 "Mechanikit" shown above is the ideal container for these tools...its tote-tray and drawers are partitioned for orderly tool arrangements and safekeeping.

367-M Master General Set. Without the Mechanikit.

Stock No.	Description	Stock No.	Description
SN-18A	Nut Spinner, 18"	A-17	Drag Link Adjuster
S-12L	Sliding Bar, 12"	A-80A	Stud Remover
S-4	Speeder, 19 1/2"	316-SW-Y	Double Hex Socket Set
SL-710	Ratchet, 10"	309-TW-Y	Single Hex Socket Set
SL-715	Ratchet, 15"	311-S-Y	Deep Double Hex Socket Set
LRS-70	Ratchet Spinner	307-TS-Y	Deep Single Hex Socket Set
67C	Ratchet Adaptor	306-SU	Flexocket Set
S-8	Universal Joint	S-9705A	Spark Plug Socket
SX-2	2" Extension Bar	WH-280	3/8" Socket (for Weatherhead)
SX-3	3 1/2" Extension Bar	WH-290	1/2" Socket (for Weatherhead)
SX-5	5" Extension Bar	WH-300	3/4" Socket (for Weatherhead)
SX-10	10" Extension Bar	KRA-21	Mechanikit



325A-M-B MASTER "SUPREME" SET

25 MOST NEEDED 1/2" SQUARE DRIVE TOOLS

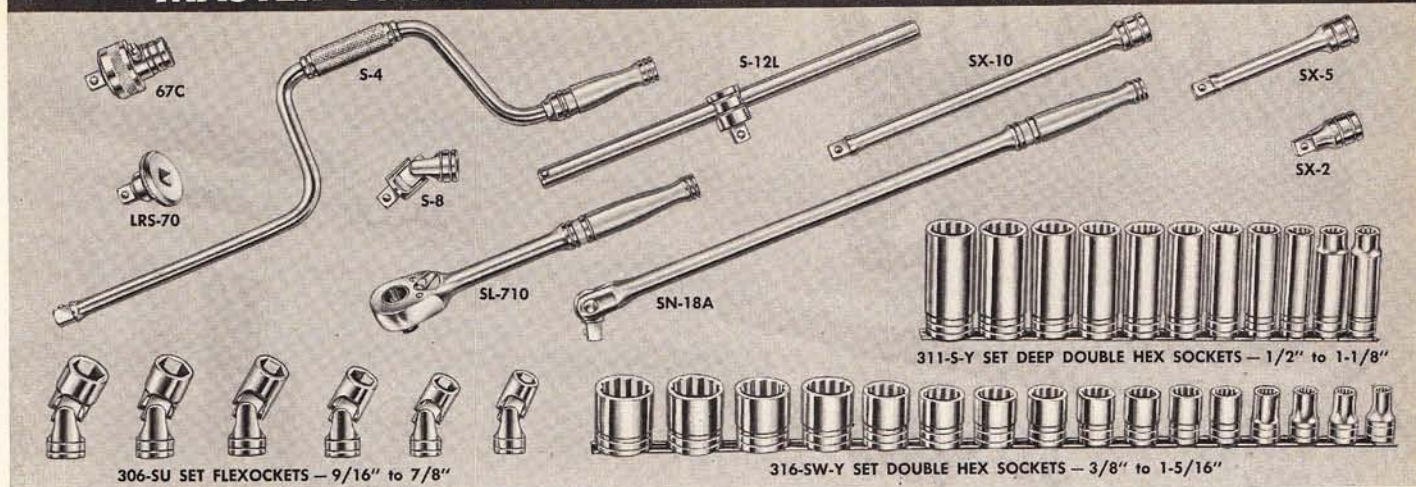
325A-M-B Master Supreme Set. The socket range of 3/16" to 1 5/16" will turn practically any hexagon nut encountered in general servicing operations and the selection of handles and attachments provide turning speed, leverage and reach to take care of any situation. Get rid of worn out knuckle busters and equip now with this fine set of SNAP-ON wrenches. Make this

set the foundation for a modern and efficient tool outfit. The KRA-280 metal case has separate compartments for sockets. A metal handle is fastened to the cover which is secured by sturdy hinges and gripclip. The case is 23" x 7 1/4" x 3 3/8" high and has red enamel finish.

325A-M Set. Above set without case.

Stock No.	Description
SL-710	Ratchet Wrench, 9 3/4" long
S-4	Nut Speeder, 19 1/2" long
67C	Ratchet Adaptor
SN-18A	Nut Spinner, 18" long
S-12L	Sliding "T" Bar, 12" long
SX-3	Extension Bar, 3 1/2" long
SX-5	Extension Bar, 5" long
SX-10	Extension Bar, 10" long
S-8	Universal Joint
316-SW-Y	Set Double Hex Sockets
KRA-280	Metal Box — Red Enamel

MASTER SOCKET WRENCH SETS—1/2" SQUARE DRIVE



343A-M-B MASTER MECHANICS SET—43 TOOLS

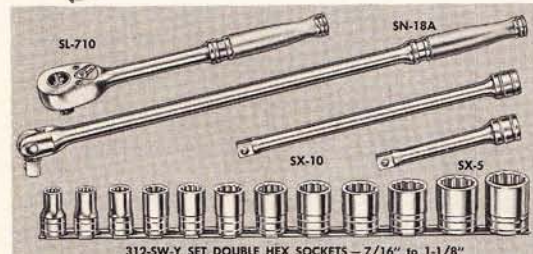
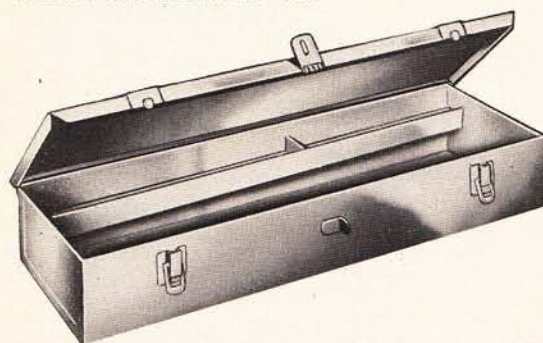
343A-M-B Master Mechanics Set. Here is a Master 1/2" Drive Set that has been asked for by many mechanics. It contains the tools most used so you get the most tool for your money. Has a wide range of socket sizes from 3/8" to 1 1/8". With 10 handles and attachments this set will handle numerous nut and bolt turning operations quickly, safely and easily. Includes eleven deep double hex sockets from 1/2" through 1 1/8"; sixteen standard double hex sockets from 3/8" through 1 1/16"; six single hex "Flexockets" from 9/16" through 7/8" and the ten handles and attachments as listed at the right. Set includes the KRA-280 box described and shown below.

Stock No.	Description	Stock No.	Description
S-710	10" Ratchet	SX-5	5" Extension Bar
LRS-70	Ratchet Spinner	SX-10	10" Extension Bar
67C	Ratchet Adaptor	311-S-Y	Master Deep Double Hex Socket Set
SN-18A	"Nut Spinner" 18"	316-SW-Y	Master Double Hex Socket Set
S-12L	Sliding "T" Handle 12"	306-SU	Master "Flexocket" Set
S-8	Universal Joint	KRA-280	Metal Tool Box
S-4	Speeder Handle 19 1/2"		
SX-2	2" Extension Bar		

343A-M Master Mechanic Set without KRA-280 box.

SPECIAL BOX FOR SETS ON THIS PAGE

KRA-280 Tool Box. This special box has built-in socket trays along both sides making it easy to segregate sockets from handles and attachments and to pick out the one you need very quickly. The box is heavy metal, spot welded for strength. It is 23" long, 7 1/4" wide and 3 3/8" deep . . . carrying handle is on top and there are two spring clasps and padlock hasp. Finished in red enamel.

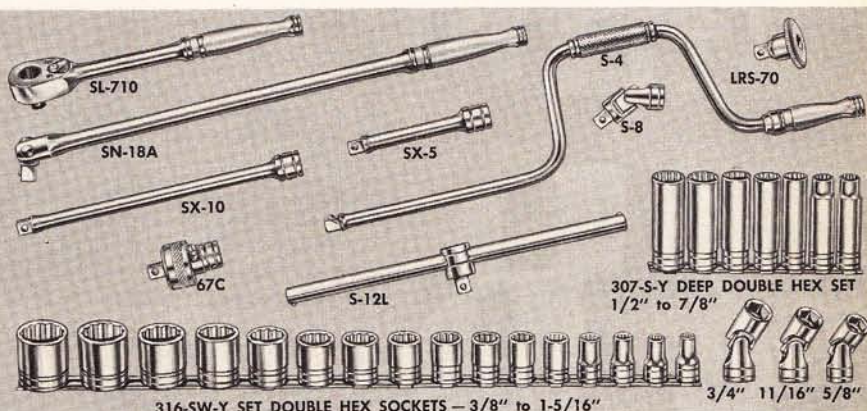


316A-M-B MASTER BASIC SET—16 TOOLS

316A-M-B Master Basic Set. Pictured above is a basic selection of 1/2" square drive SNAP-ON matched unit wrenches. It's the ideal starter set for the alert mechanic and gives him the most useful tools possible in a small set. The right tools for the job makes your work easier. Other "matched units" can be added as the need arises. The KRA-280 metal box shown, conveniently holds all the units with room for additional tools. Box has carrying handle on the lid. It measures 23" x 7 1/4" x 3 3/8" high and is finished in red enamel.

316-M Set. Tools only, in plastic tray.

Stock No.	Description
SN-18A	Master "Nut Spinner" 18"
S-710	Master Ratchet Wrench
SX-5	Master Ext. Bar 5"
SX-10	Master Ext. Bar 10"
312-SW-Y	Master Double Hex Socket Set
KRA-280	Box, Red Enamel Finish



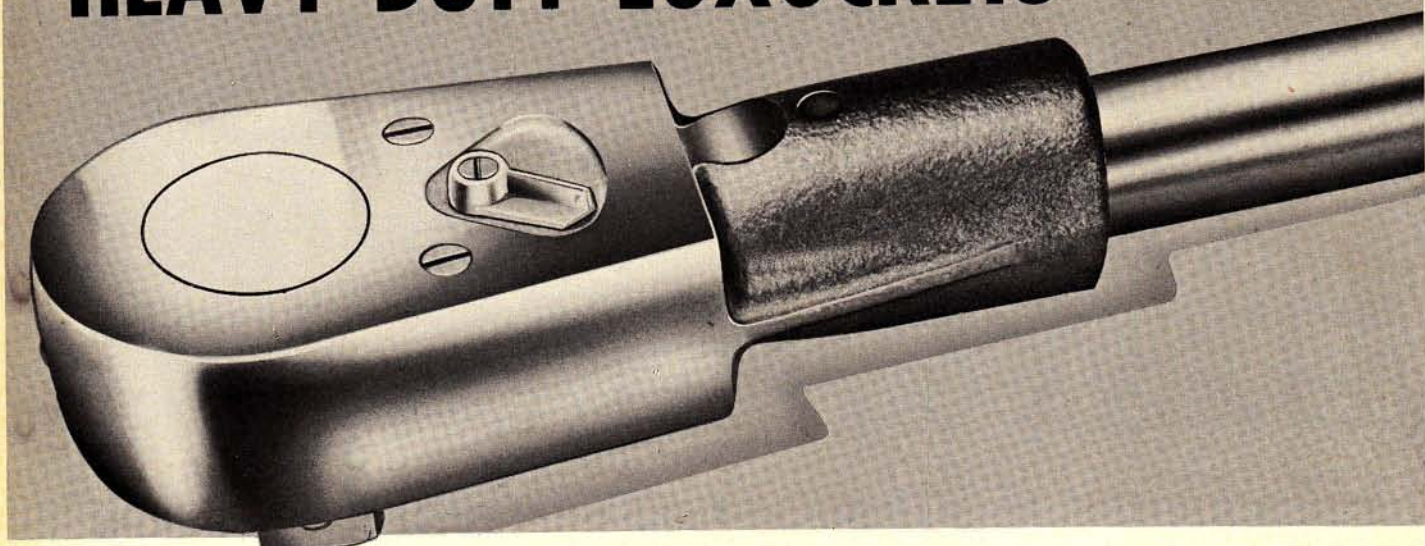
336A-M-B MASTER UTILITY SET—36 TOOLS

336A-M-B Master Utility Set. Set includes 10 double hex sockets in sizes 3/8" to 1 1/4", 7 popular sizes of deep hex sockets for spark plug work and jobs where bolts protrude, and 3 hex flexockets. The ten handles and attachments provide great versatility of use. Rid your kit of obsolete, time-wasting, "misfits" and treat yourself to greater working ease with this set of SNAP-ON matched units. Set includes KRA-280 metal box. Box has carrying handle on the lid and measures 23" x 7 1/4" x 3 3/8" high. Red enamel finish.

336A-M Master Utility Set. Same set as above but tools only.

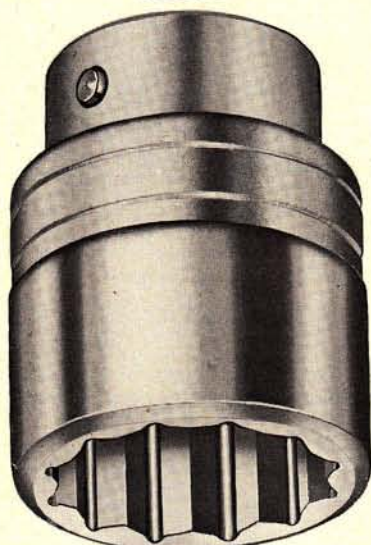
Stock No.	Description
SN-18A	Master "Nut Spinner"—18" long
S-12L	Master Sliding Bar—12" long
S-4	Master Speeder—19 1/2" long
S-710	Master Ratchet Wrench
LRS-70	Master Ratchet Spinner
67C	Master Ratchet Adaptor Wrench
SX-10	Master Extension Bar—10" long
SX-5	Master Extension Bar—5" long
SX-2	Master Extension Bar—2" long
S-8	Master Universal Joint
316-SW-Y	Master Double Hexagon Socket Set
307-S-Y	Master Deep Double Hex. Socket Set
SU-20	Master "Flexocket"—3/4" wrench size
SU-22	Master "Flexocket"—1 1/4" wrench size
SU-24	Master "Flexocket"—3/4" wrench size
KRA-280	Metal Box, Red Enamel Finish

HEAVY DUTY LOXOCKETS FOR TOUGH



Snap-on H.D. "LOXOCKETS" — 3/4" Square Drive

• Loxockets indicated by this symbol in both series listed below have FLANK DRIVE Double or single hex openings (see page 6). Those without the symbol are standard double or single hex.



When a tough nut ties up your shop, minutes lost add up to dollars lost . . . you lose money every minute any machine is laid up for repairs or servicing. The trick is to get them OUT . . . quick. It's no trick at all when mechanics are equipped with SNAP-ON Heavy Duty "Loxocket" Wrenches. Not only do they speed up the work but the locking feature contributes a safety feature. The square drive on a "Loxocket" handle has a spring tensioned pin that engages a side hole in the socket. Each socket has a release button . . . pressing the button disengages the pin and releases the handle from the socket. Interchange of units is fast — simple — easy — yet you have the advantage of a one-piece tool.

SNAP-ON "Loxockets" are machined from exceptionally high quality bar steel and held to very close tolerances. Hot broaching gives smooth, accurate openings and with no rough edges or chips at the bottom to collect dirt etc. Careful heat-treating of the "Loxocket" assures the utmost in strength with the exceptional toughness necessary for all heavy duty operations.

HEAVY DUTY EXTRA DEEP HEX SET

411-LS Set, consisting of 11 sockets, one each of LS-282 through LS-522 above.

▲ STANDARD DOUBLE HEX SERIES

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Drive End	
3/4"	●LDH-242	1 1/4"	1 1/8"	1 1/8"	2"
1 1/16"	●LDH-262	1 1/4"	1 3/4"	1 3/4"	2"
7/8"	●LDH-282	1 1/4"	1 3/4"	1 3/4"	2"
1 1/16"	●LDH-302	1 1/4"	1 3/8"	1 3/8"	2"
3 1/2"	●LDH-312	1 1/4"	1 13/32"	1 7/8"	2"
1"	●LDH-322	1 3/4"	1 29/32"	1 1/2"	2 1/4"
1 1/16"	●LDH-342	1 3/8"	1 1/8"	1 1/2"	2 1/8"
1 1/8"	●LDH-362	1 7/8"	1 3/8"	1 1/2"	2 3/8"
1 3/16"	●LDH-382	1 1/2"	1 11/16"	1 1/2"	2 3/4"
1 1/4"	●LDH-402	1 1/2"	1 3/4"	1 1/2"	2 3/4"
1 5/16"	●LDH-422A	1 1/2"	1 7/8"	1 3/8"	2 3/8"
1 3/8"	●LDH-442	1 1/2"	1 15/16"	1 3/8"	2 3/8"
1 7/8"	●LDH-462	1 3/8"	2"	1 3/8"	2 3/8"
1 1/2"	●LDH-482	1 11/16"	2 1/8"	1 3/8"	2 1/2"
1 1/16"	LDH-502	1 7/8"	2 3/16"	1 3/4"	2 3/8"
1 3/4"	LDH-522	1 3/8"	2 1/4"	1 3/4"	2 3/8"
1 1/16"	LDH-542	2"	2 3/8"	1 3/4"	2 3/4"
1 3/4"	LDH-562	2"	2 7/16"	1 3/4"	2 3/4"
1 13/16"	LDH-582	2 1/8"	2 1/2"	1 3/4"	2 3/8"
1 7/8"	LDH-602	2 3/4"	2 9/16"	1 3/4"	2 3/4"
2"	LDH-642	2 3/8"	2 3/4"	1 3/4"	3 1/8"
2 1/16"	LDH-662	2 3/8"	2 15/16"	1 3/4"	3 1/8"
2 1/8"	LDH-682	2 3/8"	2 11/16"	1 3/4"	3 1/4"
2 1/16"	LDH-702	2 1/2"	2 13/16"	1 3/4"	3 1/4"
2 1/4"	LDH-722	2 3/8"	3 1/8"	1 3/4"	3 3/8"
2 3/8"	LDH-762	2 7/8"	3 1/4"	1 3/4"	3 3/8"

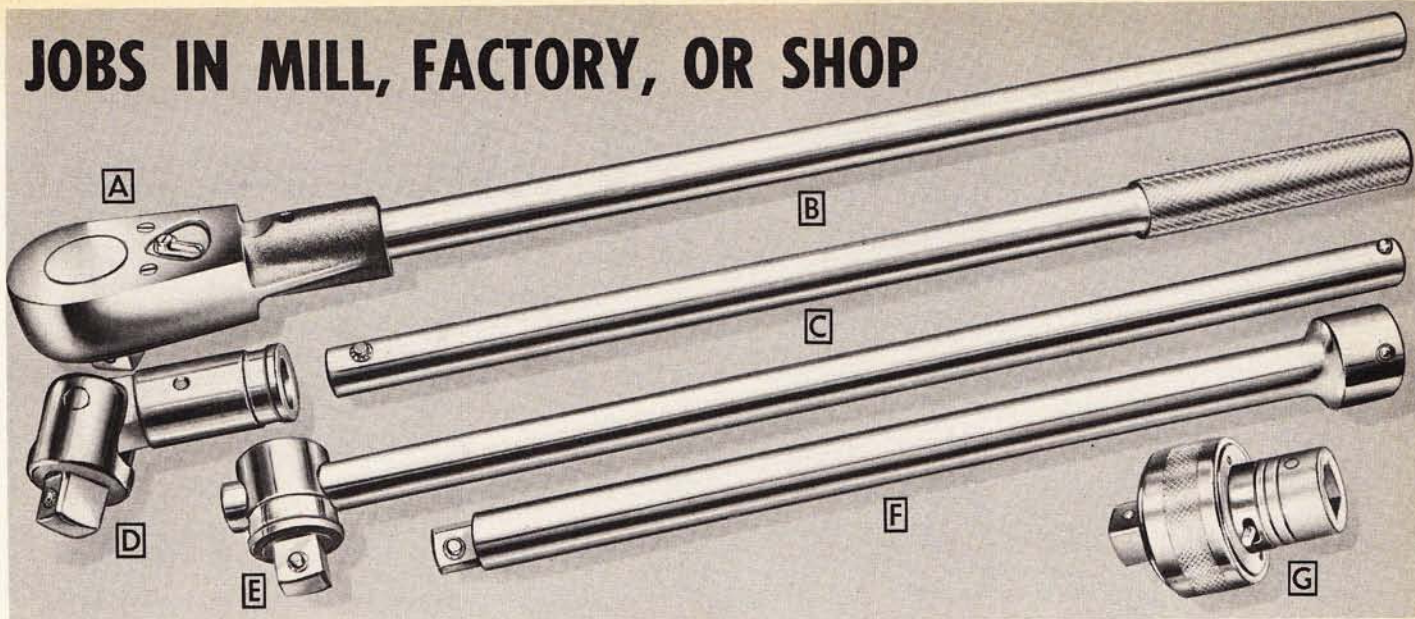
426-LDH Set. One each of above sockets.

EXTRA DEEP HEXAGON SERIES

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Drive End	
7/8"	●LS-282	2 3/4"	1 5/16"	1 7/8"	3 1/2"
1 1/16"	●LS-302	2 3/4"	1 3/8"	1 7/8"	3 1/2"
1"	●LS-322	2 3/4"	1 29/32"	1 1/2"	3 1/2"
1 1/16"	●LS-342	2 3/4"	1 15/16"	1 1/2"	3 1/2"
1 1/8"	●LS-362	2 3/4"	1 3/8"	1 1/2"	3 1/2"
1 1/4"	●LS-402	2 3/4"	1 3/4"	1 1/2"	3 1/2"
1 3/16"	●LS-422A	2 3/4"	1 7/8"	1 3/8"	3 1/2"
1 3/8"	●LS-442	2 3/4"	1 15/16"	1 3/8"	3 1/2"
1 7/16"	●LS-462	2 3/4"	2"	1 3/8"	3 1/2"
1 1/2"	●LS-482	2 3/4"	2 1/8"	1 3/8"	3 1/2"
1 5/8"	LS-522	2 3/4"	2 1/4"	1 3/4"	3 1/2"

See page 55 for Metric sizes of 3/4" drive Loxockets

JOBS IN MILL, FACTORY, OR SHOP



Snap-on HEAVY DUTY "LOXOCKET" HANDLES — 3/4" Square Drive

RATCHET AND DETACHABLE HANDLE

A and B L-72TH Heavy Duty Ratchet. A combination of the L-72T Ratchet Head and L-72H Handle. Powerful leverage to turn those larger nuts and bolts. Efficient, smooth working, reversible ratcheting action speeds your work. Rugged construction to stand heavy duty work of all kinds. The detachable handle locks on to the ratchet head and will not come off until the locking button is released. 24" long.

▲ **A L-72T Ratchet Head only.** Length 6", head thickness 1 1/8". 32 tooth action. Requires only a 12" handle swing when working in close quarters.

RKR-980 Ratchet Repair Kit. Contains parts needed to replace worn working parts of the L-72T Ratchet.

▲ **A and C L-72TJ Heavy Duty Ratchet.** Combination of the L-72T Ratchet Head and the L-72RJ Handle.

RATCHET ADAPTOR

▲ **C L-672A Ratchet Adaptor.** Converts any combination of handle, extension and socket into a 44 tooth, reverse action ratcheting tool to help cut time and labor on many jobs. Outside diameter 2 1/2", 4" long.

RKR-880 Ratchet Repair Kit. Replace worn working parts of L-672A Ratchet Adaptor with this kit.

WRENCH HANDLES

These wrench handles are made of solid high carbon alloy steel with one end fitted with a locking button for securely attaching to the Ratchet Head, or Nut Spinner Head. Heads cannot be detached accidentally but are easily released when you desire. Handle diameter is 1 3/16" and length 20".

▲ **B L-72H Handle.** Used with L-72T, L-112E and L-52B Wrench heads.

C L-72RJ Handle. Knurled Handle.

C and D L-112EJ Heavy Duty Nut Spinner. Combination of the L-112E Nut Spinner Head and the L-72RJ Handle.

SLIDING BAR

▲ **E L-52BH Heavy Duty Sliding Bar.** Complete with the L-72H handle and L-52B sliding head. Three tools in one—a combination sliding bar handle and offset handle, which the attachment of an extension bar converts to a "T" handle. The head can be purchased separately if you already have the bar handle. A spring and ball device holds the head at any point on the handle. Overall length, 20".

L-52B Sliding Head only. Depth 2 5/16". Can be used on either of the handles listed at left.

"NUT SPINNER"

▲ **B and D L-112EH Heavy Duty "Nut Spinner."** Complete with the L-72H handle and L-112E nut spinner. A heavy duty unit that offers the advantages of a "Nut Spinner" handle, an offset handle and an angle head handle all in one. The detachable handle can also be used on the Ratchet Head and Sliding Head, giving a maximum tool efficiency at a minimum cost. The entire unit is built to take those tough jobs which require extra powerful leverage to break loose those large rusted-on nuts and bolts. 21 1/2" long.

▲ **D L-112E "Nut Spinner" Head only.** Head diameter 1 1/16", depth 2 5/16". Use on either of the handles listed above.

EXTENSION BARS

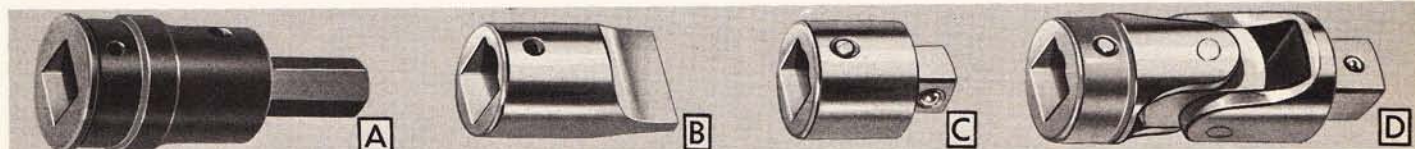
▲ **F Heavy Duty Extension Bars.** Give you the extra reach you need on so many jobs. Used in conjunction with the sliding bar, they convert it for use as a "T" handle. Shank diameter is 1 5/16".

L-122 Extension Bar 16 inches long.

L-62 Extension Bar 8 inches long.

L-42 Extension Bar 5 inches long.

L-32 Extension Bar 3 inches long.



▲ A HEX HEAD WRENCHES

For use with 3/4" square drive handles. Two-piece construction permits better heat treatment of parts for maximum service. Black finish. See Index pages for listing of other hex head wrenches.

LAW-118A 5/16" Hex Head Wrench.

SA-18-A-2 Extra 5/16" bit.

ESD-311 Roll-Pin for above.

LAW-120A 5/8" Hex Head Wrench.

LAW-120A-2 Extra 5/8" bit.

ESD-306 Roll-Pin for above.

LAW-124A 3/4" Hex Head Wrench.

LAW-124A-2 Extra 3/4" bit.

ESD-309 Roll-Pin for above.

B DRAG LINK ADJUSTER

LD-138 Drag Link Adjuster. This heavy duty unit has been made especially for drag link adjusting work on trucks and buses. The short, tapered blade will take the punishment necessary for work of this type. "Loxocket" release button permits fast, easy removal. Overall length of the unit is 2 3/16", outside diameter 1 3/16", tip size 1 3/64" x 1 1/16". Chrome finish.

▲ C HANDLE AND SOCKET ADAPTORS

These adaptors allow you to interchange your Heavy Duty (3/4" square drive) wrenches with Master (1/2" square drive), old style Heavy Duty (5/8" square drive), and Extra Heavy Duty (1" square drive) units. Chrome plated finish.

LA-12 Adaptor 1/2" drive to 3/4"

LA-62 Adaptor 3/4" drive to 1/2"

LA-52 Adaptor 3/4" drive to 5/8"

LA-32 Adaptor 5/8" drive to 3/4"

LA-72 Adaptor 3/4" drive to 1"

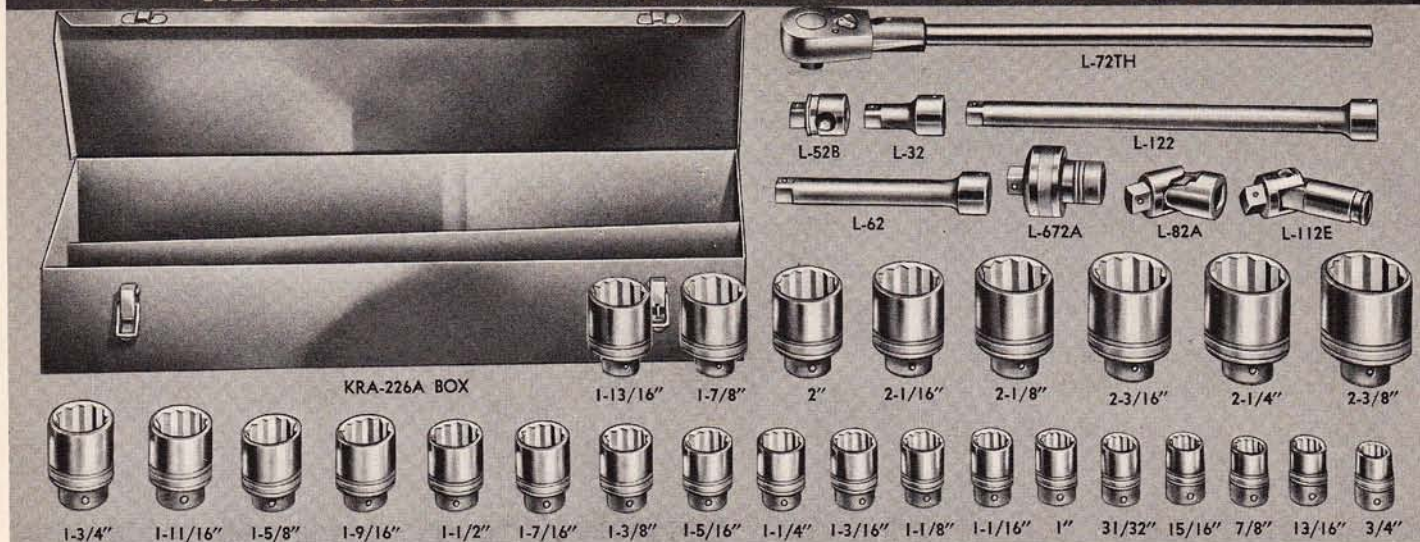
LA-124 Adaptor 1" drive to 3/4"

▲ D UNIVERSAL JOINT

L-82A Heavy Duty Universal Joint. Whenever you must reach in at an angle after a nut, you need the working convenience of a universal joint. This tool worms in and gets those around-the-corner and under-obstruction nuts and bolts.

Machined from finest alloy steel — heat treated and tempered for maximum service under toughest working conditions. Chrome finish. Outside diameter is 1 1/16", overall length 3 3/8".

HEAVY DUTY LOXOCKET SETS—3/4" SQUARE DRIVE



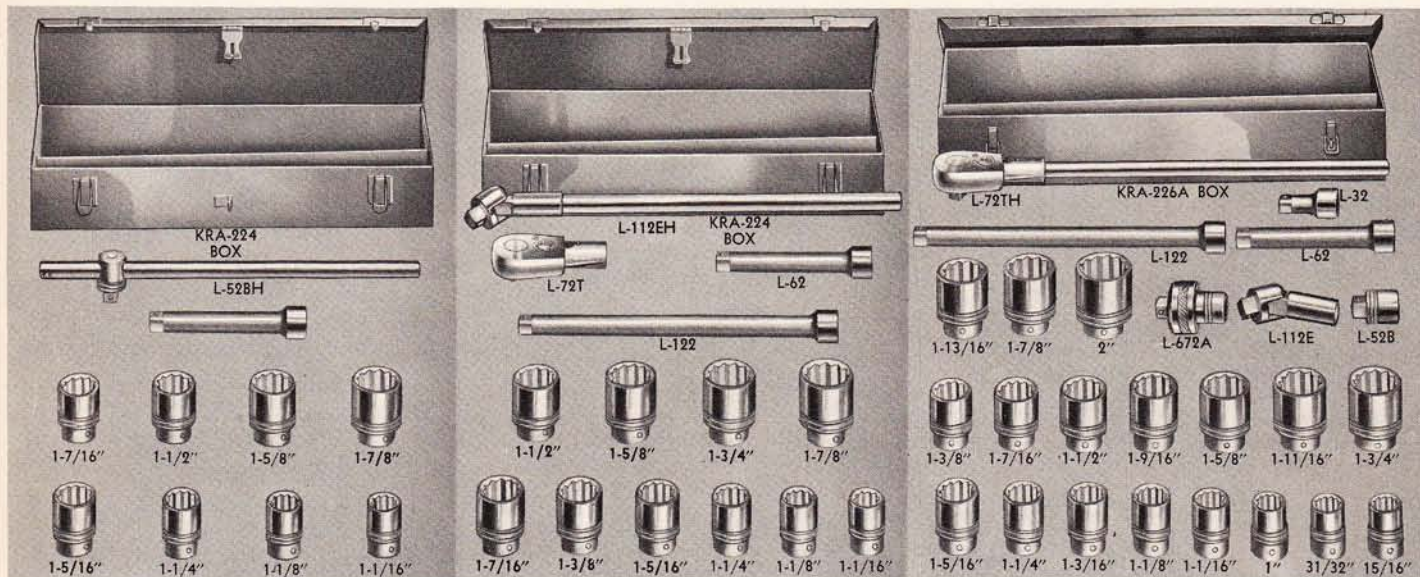
HEAVY DUTY GENERAL SET—34 TOOLS

434-HD-B Heavy Duty General Set. The right combination of tools means hours of time saved when machines and equipment are down for repair, and the proper selection of tools for production or maintenance work is a profitable investment. Equip your men to do faster, more efficient work with this complete set of heavy duty wrenches. This selection gives a "Loxocket" range of 7/8" to 2 3/4" with hundreds of handle and socket combinations. Units are described on pages 46 and 47. Detachable ratchet handle fits sliding head and nut spinner head. The sturdy KRA-226A metal box measures 26 3/4" x 9" x 3 3/8". Has trunk-type handle at each end and two clasp fasteners, one of which can be padlocked to secure the lid.

434-HD General Set. Above set but tools only.

Contents of 434-HD Heavy Duty General Set

Stock No.	Description	Stock No.	Description
L-72-TH	Ratchet (Complete)	LDH-402	1 1/4" Double Hexagon "Loxocket"
L-52B	Sliding Tee Head	LDH-422A	1 1/2" Double Hexagon "Loxocket"
L-112E	"Nut Spinner" Head	LDH-442	1 3/4" Double Hexagon "Loxocket"
L-672A	Ratchet Adaptor	LDH-462	1 7/8" Double Hexagon "Loxocket"
L-82A	Universal Joint	LDH-482	2" Double Hexagon "Loxocket"
L-32	3" Extension	LDH-502	1 1/2" Double Hexagon "Loxocket"
L-62	8" Extension	LDH-522	1 3/4" Double Hexagon "Loxocket"
L-122	16" Extension	LDH-542	1 1/2" Double Hexagon "Loxocket"
LDH-242	3/4" Double Hexagon "Loxocket"	LDH-562	1 3/4" Double Hexagon "Loxocket"
LDH-262	1 1/4" Double Hexagon "Loxocket"	LDH-582	1 1/2" Double Hexagon "Loxocket"
LDH-282	1 1/2" Double Hexagon "Loxocket"	LDH-602	1 3/4" Double Hexagon "Loxocket"
LDH-302	1 3/4" Double Hexagon "Loxocket"	LDH-642	2" Double Hexagon "Loxocket"
LDH-312	1 7/8" Double Hexagon "Loxocket"	LDH-662	2 1/4" Double Hexagon "Loxocket"
LDH-322	1" Double Hexagon "Loxocket"	LDH-682	2 3/4" Double Hexagon "Loxocket"
LDH-342	1 1/4" Double Hexagon "Loxocket"	LDH-702	2 1/2" Double Hexagon "Loxocket"
LDH-362	1 1/2" Double Hexagon "Loxocket"	LDH-722	2 3/4" Double Hexagon "Loxocket"
LDH-382	1 3/4" Double Hexagon "Loxocket"	LDH-762	2 1/2" Double Hexagon "Loxocket"



H. D. BASIC SET—10 Tools

410A-HD-B Heavy Duty Basic Set. Selected to provide maximum utility at minimum cost for the mechanic building up his tool equipment or who has only occasional need for these powerful wrenches. "Loxocket" sizes 1 1/16" to 1 3/4" handle most of heavier garage work. Set includes KRA-224 red enamel metal box, size 22 5/8" x 8 5/8" x 3 1/2".

Handles: L-52BH Sliding Bar and L-62 8" Extension.

Sockets: LDH-342, LDH-362, LDH-402, LDH-422A, LDH-462, LDH-482, LDH-522, and LDH-602.

410A-HD Set. Above set tools only.

H. D. STANDARD SET—14 Tools

414A-HD-B Heavy Duty Standard Set. Men working in fleet shops are enthusiastic about the power and safe operation provided by this set of Heavy Duty Units. The 10 "Loxockets" provide a size range of 1 1/16" to 1 7/8", the sliding bar handle also fits the ratchet head. Red enameled KRA-224 metal box measures 22 5/8" x 8 5/8" x 3 1/2".

Handles: L-72TH Ratchet Head, L-112EH Nut Spinner, L-62 8" Extension and L-122 16" Extension.

Sockets: LDH-342, LDH-362, LDH-402, LDH-422A, LDH-442, LDH-462, LDH-482, LDH-522, LDH-562, LDH-602.

414A-HD Set. Above set tools only.

HEAVY DUTY UTILITY SET—25 TOOLS

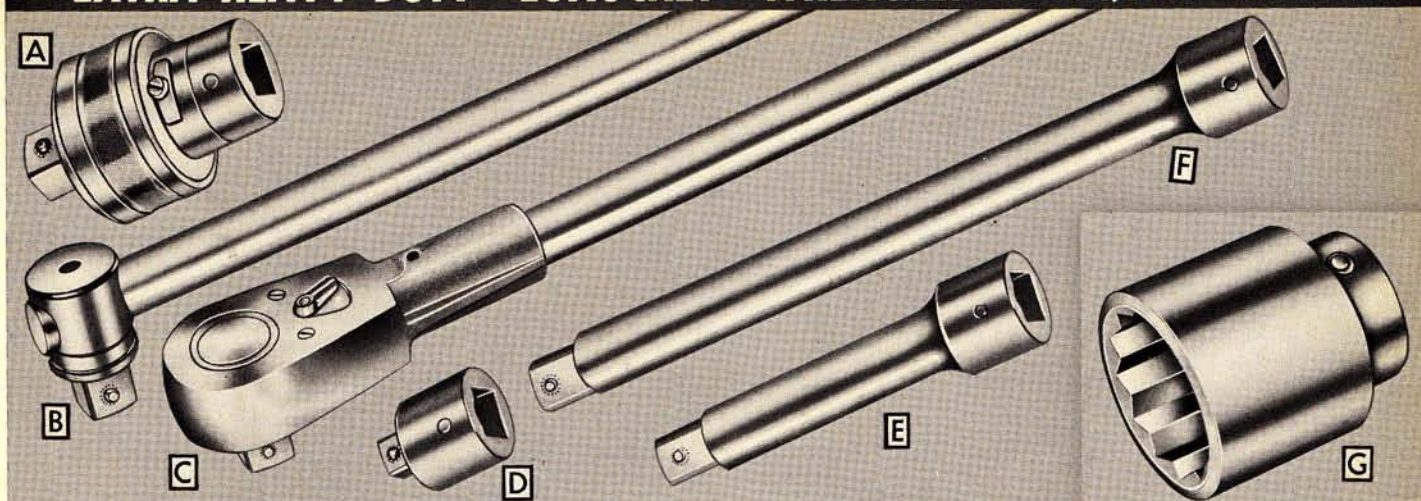
425A-HD-B Heavy Duty Utility Set. A practical selection of wrenches for factory and building maintenance, medium diesel and stationary engine assembly and service, fleet shops, etc. Detachable handle fits ratchet, nut-spinner and sliding head, 18" "Loxockets" provide sizes 1 1/16" to 2". Red enameled metal box KRA-226A measures 26 3/4" x 9" x 3 3/8".

Handles: L-72TH Ratchet, L-52B Sliding Head, L-672A Ratchet Adaptor, L-112E Nut Spinner Head, and Extension Bars, L-32, L-62, L-122.

Sockets: LDH-302, LDH-312, LDH-322, LDH-342, LDH-362, LDH-382, LDH-402, LDH-422-A, LDH-442, LDH-462, LDH-482, LDH-502, LDH-522, LDH-542, LDH-562, LDH-582, LDH-602, and LDH-642.

424A-HD Set. Above set but tools only.

EXTRA HEAVY DUTY "LOXOCKET" WRENCHES—1" SQUARE DRIVE



EXTRA HEAVY DUTY "LOXOCKET" HANDLES (1" Square Drive)

▲ **A L-673 Ratchet Adaptor.** Here is a new addition to SNAP-ON's Extra Heavy Duty series that will prove a real time-saver. It converts any combination of handle, extension and socket into a 44 tooth, reverse action ratcheting tool and will make your present set twice as useful. Outside diameter $3\frac{1}{4}$ ", overall length 5".

▲ **B L-53 Extra Heavy Duty Sliding Bar.** Thirty full inches of tremendous leverage when this tool is used as an Offset Handle. The head can be used in any position on the bar or as a tee wrench in combination with extension bars. The bar handle is the same as used on L-73C Ratchet.

L-53A Sliding Bar Head only. $3\frac{1}{16}$ " deep.

D Handle and Socket Adaptors. These two adaptors enable you to interchange your Extra Heavy Duty units (1" square drive) with Heavy Duty ($\frac{3}{4}$ " square drive) units.

▲ **LA-72 Adaptor.** $\frac{3}{4}$ " drive female end—1" drive male end.

▲ **LA-124 Adaptor.** 1" drive female end— $\frac{3}{4}$ " drive male end.

▲ **C L-73CH Ratchet with Detachable Handle.** The long handle leverage and the rugged strength of the ratcheting action recommend this wrench for the toughest kind of nut turning work.

The detachable hammer forged head and all working parts are accurately machined from special alloy steels, heat treated to give the utmost strength and durability. Hardened bearings in the head resist wear. The 30-tooth ratchet action requires only a 12° handle movement. 35" long.

▲ **L-73C Ratchet Head only,** $7\frac{1}{16}$ " long, $1\frac{1}{16}$ " thick.

L-53H Handle only, 30" long, $1\frac{1}{8}$ " dia.

RKR-990 Ratchet Repair Kit. Contains parts needed to return the L-73C Ratchet to like-new performance when normal wear affects efficiency.

Extra Heavy Duty Extension Bars. These extension bars let you adapt the Ratchet or Sliding Bar to nuts or bolts in deep holes or crevices or where obstructions interfere.

▲ **E L-63 Extension Bar** 8" long.

▲ **F L-123 Extension Bar** 16" long.

THE "LOXOCKET" PRINCIPLE

The "Loxocket" principle makes any combination of these units as safe as a one-piece wrench... they lock together securely and will not accidentally come apart... a convenient release button allows you to interchange sockets swiftly and easily. Here are tools with the power and leverage to accomplish more work easier and with less fatigue... built to break loose those big rusted-on nuts and bolts or to tighten them securely.

We recommend this equipment for speeding up the heavier nut-turning work in truck or bus shops—installation and maintenance on marine and mine machinery—on power plants and transmitting machinery—in locomotive shops, etc.

Rid your maintenance and repair operations of time wasting, worn out, obsolete or inadequate wrench equipment. Replace them with SNAP-ON wrenches that will help you handle repair jobs more efficiently and get breakdowns back to work faster. Units are machined from fine alloy steel, heat-treated under precise controls for maximum strength and chrome plated.

▲ G Extra H.D. "LOXOCKETS"

Wrench Size	Stock No.	Bolt Clearance	O.D. Socket End	O.D. Drive End	Overall Length
Double Hexagon Sizes					
$1\frac{1}{16}$ "	LDH-463	$1\frac{1}{2}$ "	$2\frac{3}{16}$ "	2"	$2\frac{3}{8}$ "
$1\frac{1}{8}$ "	LDH-483	$1\frac{3}{8}$ "	$2\frac{1}{4}$ "	2"	$2\frac{3}{4}$ "
$1\frac{3}{8}$ "	LDH-523	$1\frac{3}{4}$ "	$2\frac{3}{8}$ "	2"	$2\frac{7}{8}$ "
$1\frac{11}{16}$ "	LDH-543	$1\frac{7}{8}$ "	$2\frac{1}{2}$ "	2"	3"
$1\frac{3}{4}$ "	LDH-563	$1\frac{7}{8}$ "	$2\frac{9}{16}$ "	2"	3"
$1\frac{13}{16}$ "	LDH-583	2"	$2\frac{5}{8}$ "	$2\frac{1}{8}$ "	$3\frac{1}{8}$ "
$1\frac{7}{8}$ "	LDH-603	$2\frac{1}{8}$ "	$2\frac{3}{4}$ "	$2\frac{1}{8}$ "	$3\frac{1}{4}$ "
2"	LDH-643	$2\frac{1}{4}$ "	$2\frac{1}{2}$ "	$2\frac{1}{8}$ "	$3\frac{3}{8}$ "
$2\frac{1}{8}$ "	LDH-683	$2\frac{3}{8}$ "	$3\frac{1}{8}$ "	$2\frac{1}{4}$ "	$3\frac{1}{2}$ "
$2\frac{3}{16}$ "	LDH-703	$2\frac{1}{2}$ "	$3\frac{1}{8}$ "	$2\frac{1}{4}$ "	$3\frac{3}{8}$ "
$2\frac{1}{4}$ "	LDH-723	$2\frac{3}{8}$ "	$3\frac{1}{4}$ "	$2\frac{1}{4}$ "	$3\frac{3}{4}$ "

Single Hexagon Sizes

$2\frac{3}{8}$ "	L-763	$2\frac{3}{4}$ "	$3\frac{3}{8}$ "	$2\frac{1}{4}$ "	$3\frac{3}{8}$ "
$2\frac{1}{2}$ "	L-803	3"	$3\frac{1}{2}$ "	$2\frac{3}{4}$ "	$4\frac{1}{8}$ "
$2\frac{5}{8}$ "	L-843	$3\frac{1}{8}$ "	$3\frac{21}{32}$ "	$2\frac{3}{4}$ "	$4\frac{1}{4}$ "
$2\frac{3}{4}$ "	L-883	$3\frac{3}{8}$ "	$3\frac{13}{16}$ "	$2\frac{3}{4}$ "	$4\frac{1}{2}$ "
$2\frac{11}{16}$ "	L-943	$3\frac{3}{4}$ "	$4\frac{1}{16}$ "	$2\frac{3}{8}$ "	$4\frac{1}{8}$ "
$3\frac{1}{8}$ "	L-1003	$3\frac{3}{8}$ "	$4\frac{9}{32}$ "	$2\frac{3}{8}$ "	5"

Larger Sizes Available on Special Order.

517-LDH Set. Consists of one each of above 17 sockets.



EXTRA HEAVY DUTY STANDARD SET

521-EHD-B Extra Heavy Duty Set. Includes all seventeen Loxockets listed at the right and the following handles listed above; L-73C Ratchet Head, L-53 Sliding Bar, two Extension Bars L-63 and L-123, complete in the KRA-238A Metal Box. Box is spot welded heavy gauge steel. Lid has full length hinge and two wire bale fasteners, one of which takes a padlock. Red enamel finish. Size $31\frac{1}{2}$ " x $11\frac{1}{4}$ " x $5\frac{1}{4}$ " deep.

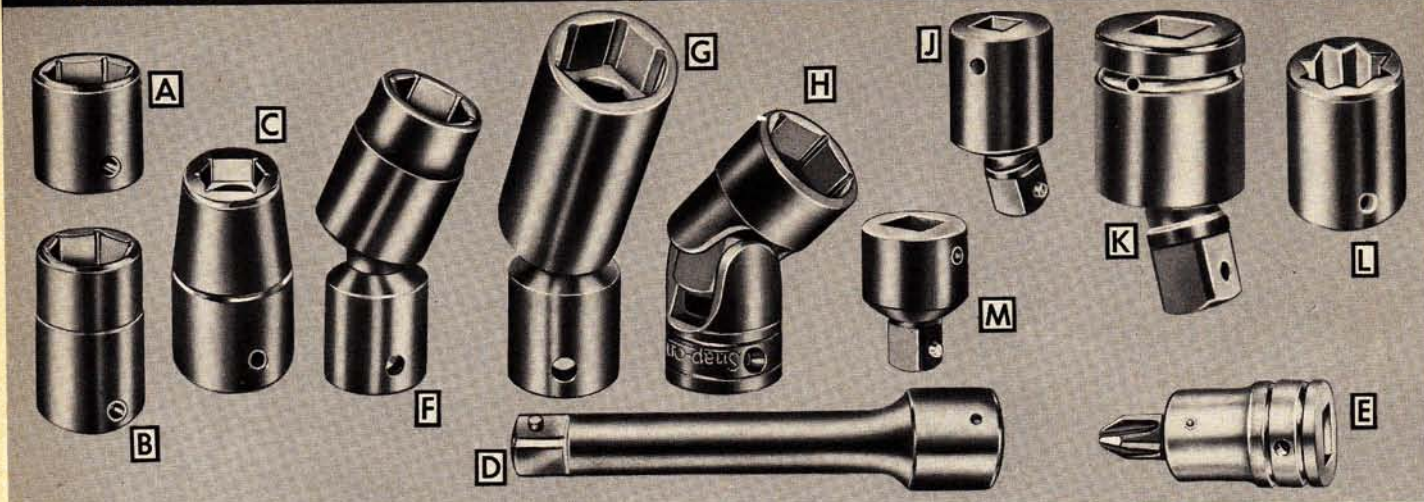
521A-EHD Set. Above set without box.

E.H.D. BASIC SET

515A-EHD-B Extra Heavy Duty Basic Set. Included are 11 powerful Hexagon "Loxockets" LDH-463, 483, 523, 543, 563, 583, 603, 643, 683, 703 and 723; the L-73C Ratchet Head, a 30" Sliding Bar L-53 and two extension bars L-63 and L-123. Includes KRA-238A Box.

515A-EHD Set. Set without box.

INDUSTRIAL SOCKETS, ETC..... FOR USE ON



FLANK DRIVE FERRET SERIES (3/8" Sq. Drive) Single Broached Hex Sockets

Outside Diameter			A STD. TYPE		B DEEP TYPE	
Wrench Size	Socket End	Handle End	Stock No.	Overall Length	Stock No.	Overall Length
5/16"	1/2"	11/16"	PF-100	7/8"	—	—
11/32"	17/32"	11/16"	PF-110	7/8"	—	—
3/8"	9/16"	11/16"	PF-120	7/8"	SPF-120	1 1/2"
7/16"	21/32"	3/4"	PF-140	1 5/16"	SPF-140	1 1/2"
1/2"	3/4"	3/4"	PF-160	1 5/16"	SPF-160	1 1/2"
9/16"	13/16"	13/16"	PF-180	1 5/16"	SPF-180	1 1/2"
5/8"	29/32"	29/32"	PF-200	1 5/16"	SPF-200	1 1/2"
11/16"	31/32"	31/32"	PF-220	1"	—	—
3/4"	1 3/64"	1 3/64"	PF-240	1"	—	—

FLANK DRIVE C SOCKETS FOR SELF-TAP SCREWS

SINGLE HEX			O.D. Socket End			Depth of Broach		Overall Length	
Wrench Size	Square Drive	Stock Number							
5/16"	3/8"	FIM-100	17/32"	3/16"	7/32"	3/16"	7/8"	3/8"	7/8"
3/8"	3/8"	FIM-120	9/8"	7/32"	7/32"	7/32"	7/8"	7/8"	7/8"
7/16"	3/8"	FIM-140	45/64"	1/4"	9/32"	1/4"	7/8"	7/8"	7/8"
1/2"	3/8"	FIM-160	51/64"	9/32"	9/32"	9/32"	7/8"	7/8"	7/8"
9/16"	3/8"	FIM-180	7/16"	5/16"	5/16"	5/16"	7/8"	7/8"	7/8"
3/8"	1/2"	PK-121	5/8"	7/32"	7/32"	7/32"	1 1/2"	1 1/2"	1 1/2"
7/16"	1/2"	PK-141	45/64"	7/32"	7/32"	7/32"	1 1/2"	1 1/2"	1 1/2"
1/2"	1/2"	PK-161	25/32"	1/4"	1/4"	1/4"	1 1/2"	1 1/2"	1 1/2"
9/16"	1/2"	PK-181	3/8"	11/32"	11/32"	11/32"	1 1/2"	1 1/2"	1 1/2"

D POWER TYPE EXTENSIONS

Stock No.	Square Drive	Shank Diameter	Overall Length
▲ PF-2	3/8"	7/16"	3"
▲ PF-6	3/8"	7/16"	6"
▲ PF-11	3/8"	7/16"	12"
▲ PS-2	1/2"	21/32"	2"
▲ PS-6	1/2"	5/8"	5"
▲ PS-12	1/2"	5/8"	10"

E PHILLIPS BIT SCREW DRIVERS (1/2" Square Drive)

Complete Tool			Bit Only No.	Roll Pin No.
Stock No.	Bit Size	Length		
SP-32	3	2 3/16"	PSP-32A-2	ESD-310
SP-42	4	2 3/16"	PSP-42A-2	ESD-310

Metric 3/8" and 1/2" square drive industrial sockets are listed on page 55.

FLANK DRIVE — IMPACT TYPE FERRET SERIES (3/8" Sq. Drive)

A F FLEXOCKETS

Single Hex			Outside Diameter		
Wrench Size	Stock No.	Socket End	Handle End	Overall Length	
3/8"	IMBF-12B	9/16"	3/4"	2"	
7/16"	IMBF-14B	9/16"	3/4"	2"	
1/2"	IMBF-16B	23/32"	3/4"	2 1/8"	
9/16"	IMBF-18B	13/16"	3/4"	2 1/8"	
5/8"	IMBF-20B	29/32"	3/4"	2 3/16"	
11/16"	IMBF-22B	31/32"	1"	2 3/8"	
3/4"	IMBF-24B	1 3/64"	1"	2 13/32"	

FLANK DRIVE — IMPACT TYPE FERRET SERIES (3/8" Sq. Drive)

G EXTRA DEEP FLEXOCKETS

Single Hex			Bolt Clearance Depth		
Wrench Size	Stock Number	Outside Diam.	Clearance Depth	Overall Length	
3/8"	SIMBF-12	3/4"	1"	2 5/8"	
7/16"	SIMBF-14	3/4"	1"	2 5/8"	
1/2"	SIMBF-16	3/4"	1"	2 5/8"	
9/16"	SIMBF-18	3/4"	1"	2 5/8"	
5/8"	SIMBF-20	3/4"	1"	2 5/8"	

205-SIMBF Set. Consists of one each of the five Flexockets, SIMBF-12 to SIMBF-20.

FLANK DRIVE — POWER TYPE FERRET SERIES (3/8" Sq. Drive)

A H FLEXOCKETS

Single Hex			Outside Diameter		
Wrench Size	Stock Number	Socket End	Handle End	Overall Length	
7/16"	PFU-14A	5/8"	1 1/16"	1 37/64"	
1/2"	PFU-16C	23/32"	1 1/16"	1 5/8"	
9/16"	PFU-18C	13/16"	3/4"	1 25/32"	
5/8"	PFU-20C	7/8"	3/4"	1 53/64"	

UNIVERSAL JOINTS

Stock No.	Square Drive	Outside Diam.	Overall Length
▲ J IMBF-80	3/8"	7/8"	1 141/64"
▲ J IMB-80	1/2"	1 3/16"	2 29/32"
▲ J IMB-81	5/8"	1 1/2"	2 219/32"
▲ K IMB-82	3/4"	1 3/4"	3 3/32"

FLANK DRIVE MASTER SERIES (1/2" Sq. Drive) F FLEXOCKETS

Wrench Size	Stock Number	Socket End	Handle End	Overall Length
7/16"	IMB-140D	5/8"	31/32"	2 11/16"
1/2"	IMB-160D	23/32"	31/32"	2 11/32"
9/16"	IMB-180D	13/16"	31/32"	2 13/32"
5/8"	IMB-200D	7/8"	1"	2 5/8"
11/16"	IMB-220D	31/32"	1"	2 11/16"
3/4"	IMB-240D	1 3/64"	1"	2 3/4"
13/16"	IMB-260B	1 3/16"	1"	2 3/16"
7/8"	IMB-280B	1 1/4"	1"	2 13/16"
15/16"	IMB-300B	1 5/16"	1"	2 7/8"
1"	IMB-320B	1 3/8"	1 1/16"	2 9/16"

310-IMB Set. 10 Flexockets listed above. 306D-IMB-Y Set. 6 Flexockets, IMB-140D through IMB-240D, with A-269 Mounting Bracket and socket clips.

FLANK DRIVE MASTER SERIES (1/2" Sq. Drive) A F THIN-WALL FLEXOCKETS

Single Hex			Outside Diameter		
Wrench Size	Stock Number	Socket End	Handle End	Overall Length	
7/16"	IMBL-140D	5/8"	15/16"	2 1/8"	
1/2"	IMBL-160D	23/32"	15/16"	2 1/8"	
9/16"	IMBL-180D	13/16"	15/16"	2 1/8"	
5/8"	IMBL-200D	7/8"	15/16"	2 1/4"	
11/16"	IMBL-220D	31/32"	1"	2 11/16"	
3/4"	IMBL-240D	1 3/64"	1"	2 1/2"	

306D-IMBL-Y Set. 6 Flexockets, IMBL-140D through IMBL-240D, with A-269 Mounting Bracket and socket clips.

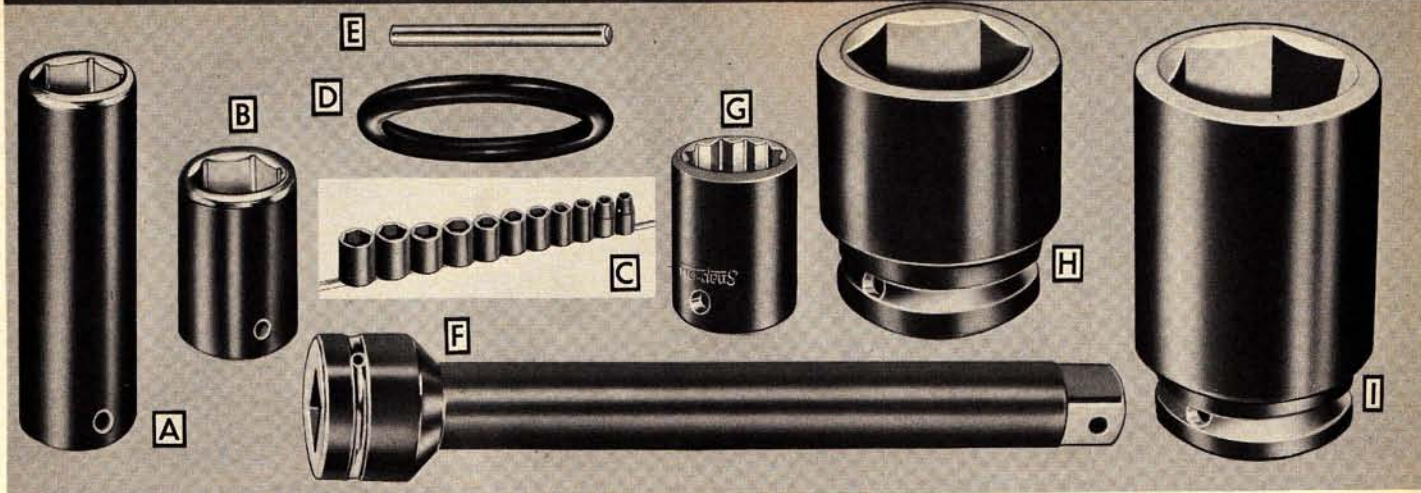
MASTER SERIES (1/2" Sq. Drive) A I Double Square Sockets

Outside Diameter			Overall Length		
Wrench Size	Stock Number	Socket End	Handle End	Overall Length	
3/8"	P-412	23/32"	3/8"	1 1/2"	
7/16"	P-414	13/16"	15/16"	1 1/2"	
1/2"	P-416	29/32"	1"	1 1/2"	
9/16"	P-418	1"	1 1/8"	1 1/2"	
5/8"	P-420	1 7/64"	1 3/16"	1 1/2"	
11/16"	P-422	1 13/64"	1 1/4"	1 1/2"	
3/4"	P-424	1 5/16"	1 3/8"	1 1/2"	
13/16"	P-426	1 7/16"	1 7/8"	1 1/2"	
7/8"	P-428	1 1/2"	1 9/16"	1 1/2"	
1"	P-432	1 23/32"	1 3/4"	1 3/4"	

M ADAPTORS — 3/8" to 1/2"

Stock Number	Square Drive Female	Male	O.D.	Overall Length
▲ PA-2	3/8"	1/2"	1 1/16"	1 5/16"
▲ PA-4	1/2"	3/8"	15/16"	1 15/32"

POWER NUT RUNNERS AND IMPACT WRENCHES



Impact sockets are heat treated to withstand powered impact use. Power sockets are intended for use on clutch type nut runners.

A MASTER SERIES (1/2" Square Drive)

▲ FLANK DRIVE — SINGLE HEX, EXTRA DEEP TYPE

Wrench Size	Stock Number		Outside Diameter		Bolt Clearance Depth	Overall Length
	IMPACT TYPE	POWER TYPE	Socket End	Handle End		
3/8"	▲SIM-120	▲SP-120	5/8"	7/8"	2 5/8"	3 1/4"
7/16"	▲SIM-140	▲SP-140	1 1/16"	7/8"	2 5/8"	3 3/4"
1/2"	▲SIM-160	▲SP-160	25/32"	15/16"	2 5/8"	3 3/4"
9/16"	▲SIM-180	▲SP-180	7/8"	15/16"	2 5/8"	3 3/4"
5/8"	▲SIM-200	▲SP-200	61/64"	1"	2 5/8"	3 3/4"
11/16"	▲SIM-220	▲SP-220	1 1/16"	1 1/16"	2 5/8"	3 3/4"
3/4"	▲SIM-240	▲SP-240	1 1/8"	1 1/8"	2 5/8"	3 3/4"
13/16"	▲SIM-260	▲SP-260	1 1/4"	1 1/4"	2 5/8"	3 3/4"
7/8"	▲SIM-280	▲SP-280	1 5/16"	1 5/16"	2 5/8"	3 3/4"
15/16"	▲SIM-300	▲SP-300 1/2	1 3/8"	1 3/8"	2 5/8"	3 3/4"
1"	▲SIM-320	▲SP-320 1/2	1 7/16"	1 7/16"	2 5/8"	3 3/4"

B MASTER SERIES (1/2" Square Drive)

▲ FLANK DRIVE — SINGLE HEX, STANDARD LENGTH

Wrench Size	Stock Number		Outside Diameter		Bolt Clearance Depth	Overall Length
	IMPACT TYPE	POWER TYPE	Socket End	Handle End		
3/8"	▲IM-120	▲P-120	39/64"	7/8"	7/8"	1 1/2"
7/16"	▲IM-140	▲P-140	1 1/16"	7/8"	7/8"	1 1/2"
1/2"	▲IM-160	▲P-160	25/32"	15/16"	7/8"	1 1/2"
9/16"	▲IM-180	▲P-180	7/8"	15/16"	7/8"	1 1/2"
5/8"	▲IM-200	▲P-200	61/64"	1"	7/8"	1 1/2"
11/16"	▲IM-220	▲P-220	1 1/16"	1 1/16"	7/8"	1 1/2"
3/4"	▲IM-240	▲P-240	1 1/8"	1 1/8"	7/8"	1 1/2"
13/16"	▲IM-260	▲P-260	1 1/4"	1 1/4"	7/8"	1 1/2"
7/8"	▲IM-280	▲P-280	1 5/16"	1 5/16"	7/8"	1 1/2"
15/16"	▲IM-300	▲P-300 1/2	1 3/8"	1 3/8"	1 1/4"	1 3/4"
1"	▲IM-320	▲P-320 1/2	1 7/16"	1 7/16"	1 1/4"	1 3/4"
1 1/16"	IM-340	▲P-340 1/2	1 9/16"	1 9/16"	1 3/8"	2"
1 1/8"	IM-360	—	1 5/8"	1 5/8"	1 3/8"	2"
1 1/16"	IM-380	—	1 11/16"	1 11/16"	1 3/8"	2"
1 1/4"	IM-400	—	1 1/2"	1 1/2"	1 3/8"	2"
1 5/16"	IM-420H	—	1 13/16"	1 13/16"	1 3/8"	2"
1 3/8"	IM-440	—	1 15/16"	1 15/16"	1 3/8"	2"
1 7/16"	IM-460	—	1 15/16"	2"	1 3/8"	2"
1 1/2"	IM-480	—	1 15/16"	2 1/8"	1 3/8"	2"

C 311-IM-Y Hex Impact Socket Set. Eleven sockets, IM-120 through IM-320 with A-267 mounting bracket and eleven A-273 socket holders.

D SYNTHETIC RUBBER LOCKING RINGS

IM-182R Locking Ring for 3/4" square drive sockets.

E LOCKING PINS

IM-182P Steel Pin for 3/4" square drive sockets.

IM-182PR Rawhide Pin fits 3/4" square drive sockets.

F IMPACT TYPE EXTENSIONS

Stock No.	Square Drive	Overall Length
▲IM-62A	3/4"	7"
▲IM-92A	3/4"	10"
▲IM-122A	3/4"	13"

G MASTER SERIES (1/2" Square Drive)

FLANK DRIVE — Double Hex, Standard Length

Wrench Size	Power Type	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
7/16"	PDH-140	11/16"	7/8"	7/8"	1 1/2"
1/2"	PDH-160	25/32"	15/16"	7/8"	1 1/2"
9/16"	PDH-180	7/8"	15/16"	7/8"	1 1/2"
5/8"	PDH-200	61/64"	1"	7/8"	1 1/2"
11/16"	PDH-220	1 1/16"	1 1/16"	7/8"	1 1/2"
3/4"	PDH-240	1 1/8"	1 1/8"	7/8"	1 1/2"
7/8"	PDH-280	1 5/16"	1 5/16"	7/8"	1 1/2"

HEAVY DUTY IMPACT SOCKETS (3/4" Square Drive)

▲ SINGLE HEXAGON BROACHED

Wrench Size	Outside Diameter		H STANDARD TYPE		I DEEP TYPE	
	Socket End	Handle End	Stock No.	Overall Length	Stock No.	Overall Length
9/16"	1"	1 1/8"	IM-182	1 3/4"	—	—
5/8"	1 1/32"	1 1/8"	IM-202	1 3/4"	SIM-202	3 3/4"
11/16"	1 1/32"	1 1/8"	IM-222	1 3/4"	—	—
3/4"	1 1/4"	1 1/8"	IM-242	1 3/4"	SIM-242	3 3/4"
13/16"	1 1/8"	1 1/8"	IM-262	1 3/8"	SIM-262	3 3/4"
7/8"	1 5/8"	1 1/8"	IM-282	1 3/8"	SIM-282	3 3/4"
15/16"	1 9/16"	1 1/8"	IM-302	1 3/8"	SIM-302	3 3/4"
1"	1 7/8"	1 1/8"	IM-322	2"	SIM-322	3 3/4"
1 1/16"	1 11/16"	1 1/8"	IM-342	2"	SIM-342	3 3/4"
1 1/8"	1 3/4"	1 1/8"	IM-362	2 1/8"	SIM-362	3 3/2"
1 1/16"	1 7/8"	1 1/8"	IM-382	2 1/8"	SIM-382	3 3/2"
1 1/4"	2"	1 3/4"	IM-402	2 1/8"	SIM-402	3 3/2"
1 5/16"	2 1/16"	1 3/4"	IM-422	2 1/4"	SIM-422	3 3/2"
1 3/8"	2 1/8"	1 3/4"	IM-442	2 1/4"	SIM-442	3 3/2"
1 7/16"	2 1/4"	1 3/4"	IM-462	2 1/4"	SIM-462	3 3/2"
1 1/2"	2 3/8"	1 3/4"	IM-482	2 1/4"	SIM-482	3 3/2"
1 11/16"	2 3/4"	1 3/4"	IM-582	2 3/8"	—	—

SPECIAL PURPOSE IMPACT SOCKETS

Similar in appearance to the 3/4" square drive sockets above, but with different heat treatment. They are intended to withstand impact use on tractor bolts and other heavy equipment and for such work should prove more durable.

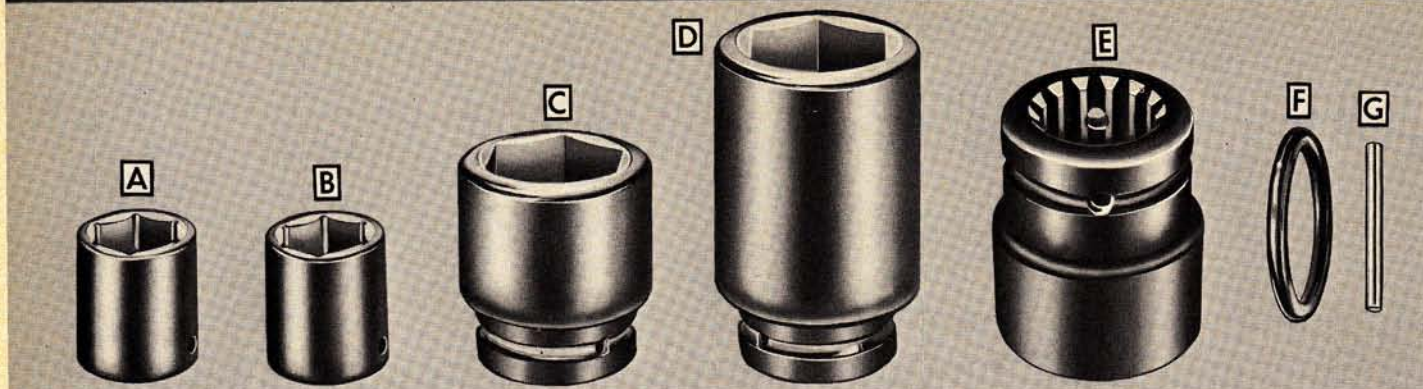
▲ H HEAVY DUTY SERIES — 3/4" Square Drive

Single Hex Wrench Size	Stock No.	Outside Diameter		Broach Depth	Bolt Clearance Depth	Overall Length
		Socket End	Handle End			
3/4"	IMT-242	1 1/4"	1 3/4"	9/16"	1"	1 3/4"
13/16"	IMT-262	1 3/8"	1 3/8"	5/8"	1 1/8"	1 3/8"
15/16"	IMT-302	1 15/16"	1 3/8"	3/8"	1 1/8"	1 3/8"
1"	IMT-322	1 3/8"	1 3/8"	11/16"	1 1/4"	2"
1 1/8"	IMT-362	1 3/8"	1 3/8"	3/4"	1 3/8"	2 1/8"
1 1/16"	IMT-422	2 1/8"	1 3/4"	7/8"	1 1/2"	2 1/4"

SPECIAL NOTICE

We cannot show our complete line of industrial wrenches and attachments in this catalog. Industrial users are invited to write for a copy of the current SNAP-ON Industrial Catalog.

Snap-on METRIC INDUSTRIAL IMPACT SOCKETS



These are black finish—industrial type sockets made expressly for electric and pneumatic impact wrenches and nut runners. Design and steel specifications together with exact control of heat treatment provides the toughness, hardness and durability necessary for this type of operation. NOTE: The 1/2" square drive, standard hexagon broached, "POWER TYPE" sockets are heat treated differently to the "IMPACT TYPE" and are not recommended for use on impact wrenches. The impact series have the new "Flank" Drive hex broaching, see page 6.

Ⓜ 1/2" SQUARE DRIVE — POWER TYPE SINGLE HEXAGON — STANDARD LENGTH

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D
		Socket End A	Handle End B		
10 mm.	PM-100	15.5 mm.	22 mm.	17.5 mm.	37.5 mm.
11 mm.	PM-110	17.5 mm.	22 mm.	17.5 mm.	37.5 mm.
12 mm.	PM-120	20 mm.	24 mm.	19 mm.	37.5 mm.
13 mm.	PM-130	20 mm.	24 mm.	19 mm.	37.5 mm.
14 mm.	PM-140	22 mm.	24 mm.	22 mm.	37.5 mm.
15 mm.	PM-150	23.5 mm.	25 mm.	22 mm.	37.5 mm.
16 mm.	PM-160	24.5 mm.	25 mm.	22 mm.	37.5 mm.
17 mm.	PM-170	26.5 mm.	26.5 mm.	22 mm.	37.5 mm.
19 mm.	PM-190	28 mm.	28 mm.	22 mm.	37.5 mm.
22 mm.	PM-220	33 mm.	33 mm.	22 mm.	37.5 mm.
24 mm.	PM-240	34.5 mm.	34.5 mm.	28 mm.	44 mm.
27 mm.	PM-270	39 mm.	39 mm.	33 mm.	50 mm.

Ⓜ 1/2" SQUARE DRIVE — IMPACT TYPE FLANK DRIVE SINGLE HEXAGON — STANDARD LENGTH

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth C	Overall Length D
		Socket End A	Handle End B		
10 mm.	IMM-100	15.5 mm.	22 mm.	17.5 mm.	38 mm.
11 mm.	IMM-110	17.5 mm.	22 mm.	17.5 mm.	38 mm.
12 mm.	IMM-120	20 mm.	24 mm.	19 mm.	38 mm.
13 mm.	IMM-130	20 mm.	24 mm.	19 mm.	38 mm.
14 mm.	IMM-140	22 mm.	24 mm.	22 mm.	38 mm.
15 mm.	IMM-150	23.5 mm.	25 mm.	22 mm.	38 mm.
16 mm.	IMM-160	24.5 mm.	25 mm.	22 mm.	38 mm.
17 mm.	IMM-170	26.5 mm.	26.5 mm.	22 mm.	38 mm.
18 mm.	IMM-180	28 mm.	28 mm.	22 mm.	38 mm.
19 mm.	IMM-190	28 mm.	28 mm.	22 mm.	38 mm.
20 mm.	IMM-200	30 mm.	30 mm.	22 mm.	38 mm.
21 mm.	IMM-210	32 mm.	32 mm.	22 mm.	38 mm.
22 mm.	IMM-220	33 mm.	33 mm.	22 mm.	38 mm.
24 mm.	IMM-240	34.5 mm.	34.5 mm.	28 mm.	44 mm.
27 mm.	IMM-270	39 mm.	39 mm.	33 mm.	50 mm.

Ⓜ 3/4" SQUARE DRIVE — IMPACT TYPE SINGLE HEXAGON — STANDARD LENGTH

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
*17 mm.	IMM-172	29 mm.	41 mm.	19.5 mm.	44.5 mm.
*19 mm.	IM-242	32 mm.	41 mm.	25 mm.	44.5 mm.
20 mm.	IMM-202	32 mm.	41 mm.	19.5 mm.	44.5 mm.
22 mm.	IMM-222	36.5 mm.	41 mm.	25 mm.	47.5 mm.
*24 mm.	IMM-242	39.5 mm.	41 mm.	25 mm.	47.5 mm.
*27 mm.	IM-342	43 mm.	41 mm.	32 mm.	51 mm.
*30 mm.	IM-382	48 mm.	41 mm.	33 mm.	54 mm.
31 mm.	IMM-312	45.5 mm.	41 mm.	31 mm.	53 mm.
32 mm.	IMM-322	50 mm.	44.5 mm.	28 mm.	53 mm.
34 mm.	IMM-342	50 mm.	44.5 mm.	34.5 mm.	53 mm.
*35 mm.	IM-442	54 mm.	44.5 mm.	38 mm.	57 mm.
36 mm.	IMM-362	53.5 mm.	44.5 mm.	38 mm.	55 mm.
*38 mm.	IM-482	54 mm.	44.5 mm.	38 mm.	57 mm.
40 mm.	IMM-402	59.5 mm.	44.5 mm.	44.5 mm.	68 mm.
46 mm.	IM-582	70 mm.	44.5 mm.	41 mm.	60 mm.

*Flank Drive single hex opening

Ⓜ 3/4" SQUARE DRIVE — IMPACT TYPE SINGLE HEXAGON — BOLT CLEARANCE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
*19 mm.	SIM-242	32 mm.	41 mm.	60 mm.	76 mm.
*24 mm.	SIMM-242	41 mm.	41 mm.	56.5 mm.	75 mm.
*27 mm.	SIM-342	44 mm.	41 mm.	60 mm.	75 mm.
*30 mm.	SIM-382	50 mm.	44.5 mm.	54 mm.	82.5 mm.
32 mm.	SIMM-322	50 mm.	44.5 mm.	53 mm.	81 mm.
*35 mm.	SIM-442	54 mm.	44.5 mm.	67 mm.	81 mm.
36 mm.	SIMM-362	56 mm.	44.5 mm.	63 mm.	88 mm.
*38 mm.	SIM-482	57 mm.	44.5 mm.	63 mm.	88 mm.

*Flank Drive single hex opening

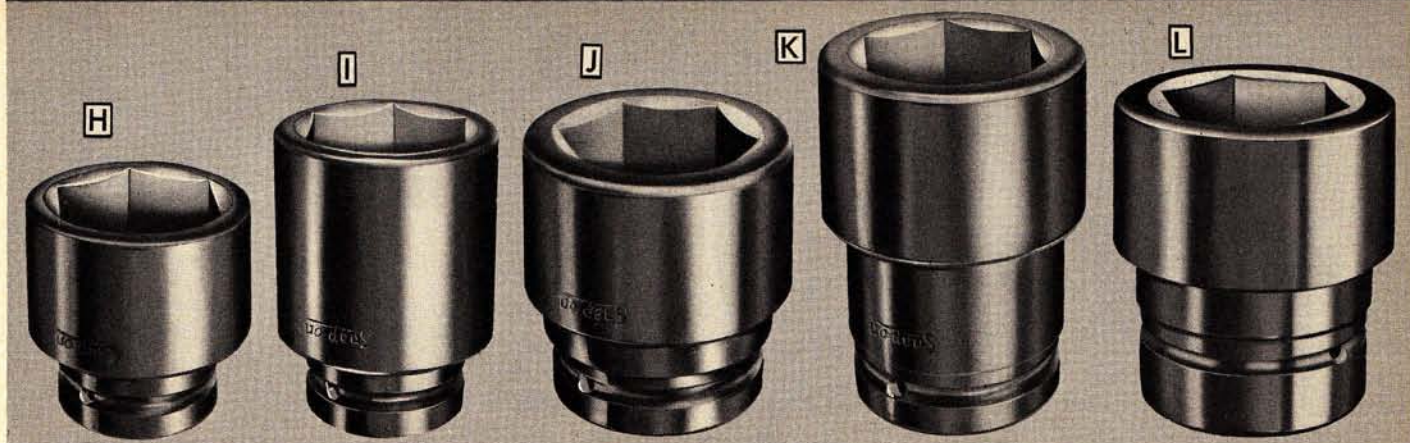
Ⓜ NO. 5 INVOLUTE SPLINE DRIVE SINGLE HEXAGON — IMPACT TYPE

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
38 mm.	IMS-487	57 mm.	60 mm.	44.5 mm.	76 mm.
46 mm.	IMS-587	70 mm.	60 mm.	46 mm.	83 mm.
54 mm.	IMS-687	78 mm.	60 mm.	48 mm.	91 mm.
65 mm.	IMS-827	94 mm.	60 mm.	57 mm.	102 mm.
70 mm.	IMS-887	97 mm.	60 mm.	54 mm.	105 mm.

SPLINE DRIVE ATTACHMENTS

IMSA-3 Adaptor. Female spline drive to 1" square male drive.
IMSX-8, 8" Extension. Spline Drive both ends.
IMSA-30 Adaptor. 1" Square Female Opening and Spline Male Drive.
IMS-8 Universal Joint. Spline Drive — both ends.

Snap-on METRIC INDUSTRIAL IMPACT SOCKETS



**H 1" SQUARE DRIVE — IMPACT TYPE
SINGLE HEXAGON — STANDARD LENGTH**

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
19 mm.	IM-243	38 mm.	54 mm.	24 mm.	54 mm.
24 mm.	IMM-243	40.5 mm.	53 mm.	24 mm.	53 mm.
27 mm.	IM-343	44.5 mm.	54 mm.	27 mm.	57 mm.
30 mm.	IM-383	48 mm.	54 mm.	27 mm.	57 mm.
32 mm.	IMM-323	50 mm.	53 mm.	30 mm.	59.5 mm.
35 mm.	IM-443	54 mm.	54 mm.	33 mm.	63.5 mm.
36 mm.	IMM-363	56 mm.	56 mm.	30 mm.	63 mm.
38 mm.	IM-483	60 mm.	60 mm.	40 mm.	70 mm.
41 mm.	IMM-413	59.5 mm.	59.5 mm.	34.5 mm.	68 mm.
46 mm.	IM-583	70 mm.	60 mm.	46 mm.	76 mm.
50 mm.	IMM-503	69.5 mm.	59.5 mm.	41 mm.	72.5 mm.
52 mm.	IM-663	76 mm.	60 mm.	52 mm.	94 mm.
54 mm.	IM-683	94 mm.	60 mm.	52 mm.	94 mm.
55 mm.	IMM-553	81 mm.	59.5 mm.	50 mm.	81 mm.
60 mm.	IMM-603	88 mm.	59.5 mm.	56 mm.	88 mm.
65 mm.	IM-823	94 mm.	60 mm.	65 mm.	94 mm.
70 mm.	IM-883	97 mm.	60 mm.	65.5 mm.	97 mm.
75 mm.	IM-943	108 mm.	60 mm.	76 mm.	105 mm.

**I 1" SQUARE DRIVE — IMPACT TYPE
SINGLE HEXAGON — BOLT CLEARANCE**

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
22 mm.	SIMM-223	40.5 mm.	53 mm.	76.5 mm.	107 mm.
24 mm.	SIMM-243	40.5 mm.	53 mm.	76.5 mm.	107 mm.
27 mm.	SIM-343	46 mm.	54 mm.	46 mm.	76 mm.
30 mm.	SIM-383	46 mm.	54 mm.	46 mm.	76 mm.
32 mm.	SIMM-323	51.5 mm.	53 mm.	76.5 mm.	107 mm.
35 mm.	SIM-443	52 mm.	54 mm.	52 mm.	81.5 mm.
38 mm.	SIM-483	60 mm.	60 mm.	59 mm.	88 mm.
46 mm.	SIM-583	70 mm.	60 mm.	68 mm.	97 mm.
52 mm.	SIM-663	76 mm.	57 mm.	68 mm.	97 mm.
54 mm.	SIM-683	81.5 mm.	60 mm.	80 mm.	111 mm.
65 mm.	SIM-823	94 mm.	60 mm.	88 mm.	124 mm.
70 mm.	SIM-883	97 mm.	60 mm.	91 mm.	130 mm.

F (Page 52) LOCKING RINGS—SYNTHETIC RUBBER

IM-182R Fits all 3/4" square drive sockets above.

IM-243R Fits 1" square drive sockets IMM-243 to IMM-363 and SIMM-223 to SIMM-323.

IM-483R Fits 1" square drive sockets IMM-413 to IMM-653.

G (Page 52) LOCKING PINS

IM-182P Steel Pin. Fits 3/4" square drive sockets above.

IM-182PR Rawhide Pin. Fits 3/4" square drive sockets above.

IM-243P Steel Pin. Fits same sockets as IM-243R Ring.

IM-243PR Rawhide Pin. Fits same sockets as IM-243R Ring.

IM-483P Steel Pin. Fits same sockets as IM-483 Ring.

**J 1 1/2" SQUARE DRIVE — IMPACT TYPE
SINGLE HEXAGON — STANDARD LENGTH**

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
35 mm.	IM-445	73 mm.	81.5 mm.	38 mm.	78 mm.
38 mm.	IM-485	73 mm.	81.5 mm.	38 mm.	78 mm.
46 mm.	IM-585	78 mm.	81.5 mm.	41 mm.	81.5 mm.
52 mm.	IM-665	81.5 mm.	81.5 mm.	49 mm.	88 mm.
54 mm.	IM-685	88 mm.	81.5 mm.	51 mm.	91 mm.
65 mm.	IM-825	101.5 mm.	81.5 mm.	60 mm.	101.5 mm.
70 mm.	IM-885	108 mm.	81.5 mm.	67 mm.	108 mm.
75 mm.	IM-945	114 mm.	81.5 mm.	70 mm.	111 mm.
90 mm.	IM-1145	130 mm.	81.5 mm.	85.5 mm.	127 mm.
95 mm.	IM-1205	140 mm.	81.5 mm.	91 mm.	133 mm.
100 mm.	IM-1265	146 mm.	81.5 mm.	97 mm.	140 mm.
105 mm.	IM-1325	152 mm.	81.5 mm.	101.5 mm.	143 mm.
110 mm.	IM-1385	159 mm.	81.5 mm.	105 mm.	146 mm.

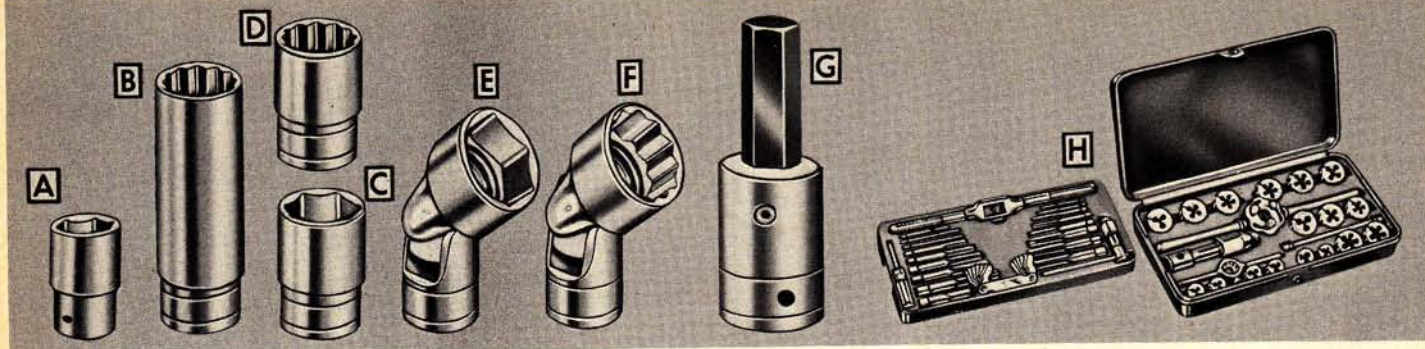
**K 1 1/2" SQUARE DRIVE — IMPACT TYPE
SINGLE HEXAGON — BOLT CLEARANCE**

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
35 mm.	SIM-445	73 mm.	81.5 mm.	60 mm.	101.5 mm.
38 mm.	SIM-485	73 mm.	81.5 mm.	60 mm.	101.5 mm.
46 mm.	SIM-585	78 mm.	81.5 mm.	70 mm.	111 mm.
52 mm.	SIM-665	81.5 mm.	81.5 mm.	73 mm.	114 mm.
54 mm.	SIM-685	88 mm.	81.5 mm.	78 mm.	120.5 mm.
65 mm.	SIM-825	101.5 mm.	81.5 mm.	88 mm.	133 mm.
70 mm.	SIM-885	114 mm.	81.5 mm.	97 mm.	143 mm.
75 mm.	SIM-945	114 mm.	81.5 mm.	103 mm.	146 mm.
90 mm.	SIM-1145	130 mm.	81.5 mm.	111 mm.	162 mm.
95 mm.	SIM-1205	140 mm.	81.5 mm.	122 mm.	171.5 mm.
100 mm.	SIM-1265	146 mm.	81.5 mm.	135 mm.	184 mm.
105 mm.	SIM-1325	152 mm.	81.5 mm.	140 mm.	190.5 mm.

**L 2 1/2" SQUARE DRIVE — IMPACT TYPE
SINGLE HEXAGON — STANDARD LENGTH**

Wrench Size	Stock Number	Outside Diameter		Bolt Clearance Depth	Overall Length
		Socket End	Handle End		
70 mm.	IM-889	127 mm.	127 mm.	78 mm.	146.5 mm.
75 mm.	IM-949	127 mm.	127 mm.	78 mm.	146.5 mm.
95 mm.	IM-1209	159 mm.	127 mm.	97 mm.	159 mm.
105 mm.	IM-1329	159 mm.	127 mm.	97 mm.	159 mm.

Snap-on METRIC STANDARD WRENCH SIZES AND SPECIFICATIONS



METRIC SOCKET WRENCHES AND SETS

ALL SIZE SPECIFICATIONS
ARE GIVEN IN MILLIMETERS

The Metric sockets listed on this page have the new SNAP-ON "Flank-Drive" hex broaching described on page 6.

Handles to fit the sockets listed on this page may be located as follows.

1/4" square drive on page 32

3/8" square drive on pages 34-35

1/4" SQUARE DRIVE FLANK DRIVE A SINGLE HEXAGON

Wrench Size	Stock No.	Bolt Clearance Depth	Socket End	Handle End	Lgth.
4 mm.	*TM-4M	12.5	7.5	11	22
5 mm.	*TM-5M	13.5	7.5	11	22
6 mm.	*TM-6M	13.5	9.5	11	22
7 mm.	TM-7M	13.5	11	11	22
8 mm.	TM-8M	13.5	11	11	22
9 mm.	TM-9M	13.5	12.5	12.5	22
10 mm.	TM-10M	13.5	14	14	22
11 mm.	TM-11M	13.5	16	14	22
12 mm.	TM-12M	13.5	17.5	15	22
13 mm.	TM-13M	13.5	17.5	15	22
14 mm.	TM-14M	14	20	18	22

*Regular (not Flank Drive) broached.

111-MTM 1/4" Drive Single Hex Set. 11 sockets, TM-4M to TM-14M.

3/8" SQUARE DRIVE FLANK DRIVE B DEEP DOUBLE HEXAGON

Wrench Size	Stock No.	Bolt Clearance Depth	Socket End	Handle End	Lgth.
9 mm.	SF-9M	42.5	14	17.5	54
10 mm.	SF-10M	42.5	14	17.5	54
11 mm.	SF-11M	42.5	15.5	17.5	54
12 mm.	SF-12M	42.5	17.5	17	54
13 mm.	SF-13M	42.5	18	17	54
14 mm.	SF-14M	49	20	18.5	60
15 mm.	SF-15M	49	20.5	19	60
16 mm.	SF-16M	49	21.5	20	60
17 mm.	SF-17M	55.5	24	22	67
18 mm.	SF-18M	55.5	24.5	23	67
19 mm.	SF-19M	55.5	25	24	67

211-SFM-T 3/8" Drive Deep Double Hex Set. 11 Sockets, SF-9M to SF-19M, in KTA-231B Metal Tray.

211-SFM Set. Above set, tools only.

3/8" SQUARE DRIVE FLANK DRIVE

C SINGLE HEXAGON
D DOUBLE HEXAGON

Wrench Size	Stock Number		Outside Diameter		Bolt Clearance Depth	Length
	Single Hexagon C	Double Hexagon D	Socket End	Handle End		
6 mm.	FSM-6	—	9	17	11	23
7 mm.	FSM-7	—	10.5	17	11	23
8 mm.	FSM-8	F-8M	11.5	17	11	23
9 mm.	FSM-9	F-9M	12.5	17.5	11	23
10 mm.	FSM-10	F-10M	14	17.5	11	23
11 mm.	FSM-11	F-11M	15.5	17.5	11	23
12 mm.	FSM-12	F-12M	18	18	11	23
13 mm.	FSM-13	F-13M	18	17	12.5	24
14 mm.	FSM-14	F-14M	19	17.5	12.5	24
15 mm.	FSM-15	F-15M	20.5	19.5	14	25.5
16 mm.	FSM-16	F-16M	21.5	20.5	14	26
17 mm.	FSM-17	F-17M	23	21.5	16	27
18 mm.	FSM-18	F-18M	24.5	23	16	27
19 mm.	FSM-19	F-19M	25.5	24	16	28
20 mm.	FSM-20	F-20M	27	25	16	28.5
21 mm.	FSM-21	F-21M	27.5	26	16	29
22 mm.	FSM-22	F-22M	28.5	27	17	29

211-FM-T 3/8" Drive Double Hex Set. 11 sockets, F-9M to F-19M in KTA-230 metal tray.

211-FM Set. The above set without the tray.

215-FM Set. 15 sockets, F-8M to F-22M.

206-FSM. 3/8" Drive Single Hex Set, 6 hex sockets, FSM-9 to FSM-14.

212-FSM-Y. 3/8" Drive Single Hex Set. 12 sockets FSM-8 to FSM-19, with A-269 Mounting Strip and 12 socket clips.

217-FSM. 3/8" Drive Single Hex Set. 17 sockets FSM-6 to FSM-22.

B METRIC TAP AND DIE SET

TDM-117 Metric Set. Contains TD-3, 3/8" Die Stock, TD-10, 1" Die Stock, TD-4, TD-50 and TD-88 Tap Wrenches, Screw Driver, TDM-100 Thread Gauge and 17 sizes of taps and double hex dies, packed in TDM-117-1 plastic box. Dies can be turned with a 3/8" socket wrench.

Stock Number		Size in mm.	Hex Size
Taps	Dies		
T-306M	D-306M	3-0.60	3/8"
T-407M	D-407MA	4-0.70	3/8"
T-4075M	D-4075M	4-0.75	3/8"
T-508M	D-508MA	5-0.80	3/8"
T-509M	D-509M	5-0.90	3/8"
T-610M	D-610MA	6-1.00	3/8"
T-710M	D-710M	7-1.00	1"
T-810M	D-810M	8-1.00	1"
T-912M	D-912M	8-1.25	1"
T-910M	D-910M	9-1.00	1"
T-912M	D-912M	9-1.25	1"
T-1012M	D-1012M	10-1.25	1"
T-1015M	D-1015M	10-1.50	1"
T-1115MA	D-1115M	11-1.50	1"
T-1212M	D-1212M	12-1.25	1"
T-1215M	D-1215M	12-1.50	1"
T-1217M	D-1217M	12-1.75	1"

3/8" SQUARE DRIVE FLANK DRIVE

E SINGLE HEX FLEXOCKETS

Wrench Size	Stock No.	Outside Diameter		
		Socket End	Handle End	Length
10 mm.	FSU-10M	17.5	17.5	40.5
11 mm.	FSU-11M	17.5	17.5	40.5

F DOUBLE HEX FLEXOCKETS

Wrench Size	Stock No.	Socket End	Handle End	Length
12 mm.	FU-12M	18	17.5	43
13 mm.	FU-13M	18	17.5	43
14 mm.	FU-14M	20	17.5	46
15 mm.	FU-15M	21.5	17.5	45
17 mm.	FU-17M	24	19	50
19 mm.	FU-19M	25.5	19	52
22 mm.	FU-22M	29.5	19	53

209-FUM-B 3/8" Drive Flexocket Set. 9 sockets, FSU-10M to FU-22M in KRA-229 metal box.

209-FUM. The above set without box.

3/8" SQUARE DRIVE

G METRIC HEX HEAD WRENCHES
SOCKET TYPE

These wrenches provide an efficient method for turning hex head cap screws encountered on various types of equipment using metric sizes.

Complete Tool			Bit Number	Pin Number
Hex Size	Number	Length		
4 mm.	FAM-4	53	FAM-4-2	ESD-322
5 mm.	FAM-5	53	FAM-5-2	ESD-303
6 mm.	FAM-6	53	FAM-6-2	ESD-303
8 mm.	FAM-8	52	FAM-8-2	ESD-304
10 mm.	FAM-10	116	FAM-10-2	ESD-304

METRIC SIZES OF TAPS AND DIES NOT IN TDM-117 SET AT LEFT

T-1412M Tap. Size 14mm.-1.25

T-1415M Tap. Size 14mm.-1.50

T-1420M Tap. Size 14mm.-2.00

HEXAGON DIES — RIGHT HAND THREADING

Stock No.	Size in mm.	Hex Size	Stock No.	Size in mm.	Hex Size
D-1412M	14-1.25	1 1/16"	D-1815M	18-1.50	1 1/16"
D-1415M	14-1.50	1 1/16"	D-1825M	18-2.50	1 1/16"
D-1420M	14-2.00	1 1/16"	D-2025M	20-2.50	1 1/16"
D-1615M	16-1.50	1 1/4"	D-2215M	22-1.50	1 1/4"
D-1620M	16-2.00	1 1/4"	D-2415M	24-1.50	1 3/16"
D-1810M	18-1.00	1 1/4"	D-3015M	30-1.50	2"

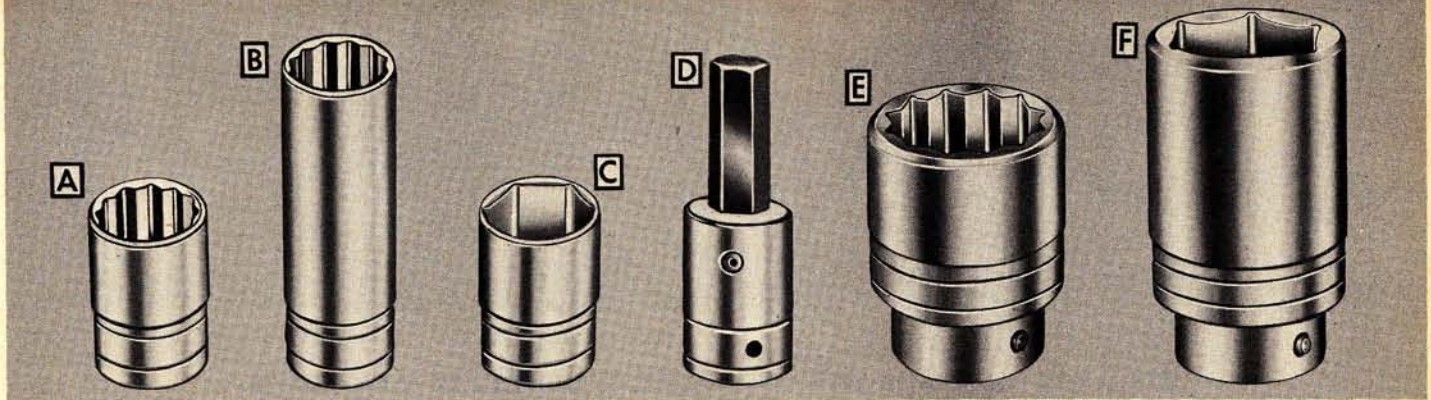
HEXAGON DIES — LEFT HAND THREADING

Stock No.	Size in mm.	Hex Size	Stock No.	Size in mm.	Hex Size
D-1615ML	16-1.50	1 1/4"	D-1815ML	18-1.50	1 1/16"
D-1810ML	18-1.00	1 1/4"	D-2215ML	22-1.50	1 1/4"

METRIC BOLT AND THREAD GAUGE

TDM-101 Set. Contains a bolt diameter gauge 2.3mm. to 24mm. with inch fraction equivalents and a thread gauge with sizes .35mm. to 3mm.

Snap-on METRIC STANDARD WRENCH SIZES AND SPECIFICATIONS



METRIC SOCKET WRENCHES AND SETS

ALL SIZE SPECIFICATIONS ARE GIVEN IN MILLIMETERS

Handles to fit the sockets listed on this page may be located as follows:

1/2" square drive on pages 40-41.
3/4" square drive on page 47.

1/2" SQUARE DRIVE FLANK DRIVE

(A) DOUBLE HEXAGON

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
10 mm.	SW-10M	22	14.5	22	38
11 mm.	SW-11M	22	16.5	22	38
12 mm.	SW-12M	22	17.5	22	38
13 mm.	SW-13M	22	18.5	22	38
14 mm.	SW-14M	22	20.5	22	38
15 mm.	SW-15M	22	22	22.5	38
16 mm.	SW-16M	22	22.5	22	38
17 mm.	SW-17M	22	24.5	23	38
18 mm.	SW-18M	22	25	24	38
19 mm.	SW-19M	22	26.5	25	38
20 mm.	SW-20M	22	27	25.5	38
21 mm.	SW-21M	22	28.5	27	38
22 mm.	SW-22M	22	30	28.5	38
23 mm.	SW-23M	22	32	30	38
24 mm.	SW-24M	22	32.5	31	38
25 mm.	SW-25M	22	34	32.5	38
26 mm.	SW-26M	25	36	35	41
27 mm.	SW-27M	25	36.5	35	41
28 mm.	SW-28M	28	38	36.5	44
29 mm.	SW-29M	28	40	38	44
30 mm.	SW-30M	28	41	40	44
31 mm.	SW-31M	31	43	40	48
32 mm.	SW-32M	31	43	40	48

310-SWM-Y 1/2" Drive Double Hex Set, 10 sockets SW-10M thru SW-32M, with A-269 Mounting Bracket and ten A-273B Socket Clips.

316-SWM 1/2" Drive Double Hex Set, 16 sockets, SW-10M to SW-25M.

323-SWM 1/2" Drive Double Hex Set, 23 sockets, SW-10M to SW-32M.

1/2" SQUARE DRIVE FLANK DRIVE

(B) DEEP DOUBLE HEXAGON

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
14 mm.	S-14M	66.5	20.5	22	82.5
17 mm.	S-17M	66.5	24.5	23	82.5
19 mm.	S-19M	66.5	26.5	24.5	82.5
20.6 mm.	S-20.6M	66.5	28.5	27	82.5
22 mm.	S-22M	66.5	30	28.5	82.5
27 mm.	S-27M	66.5	36.5	35	82.5

306-SM 1/2" Drive Deep Double Hex Set, 6 sockets, S-14M to S-27M.

1/2" SQUARE DRIVE

FLANK DRIVE

(C) SINGLE HEXAGON

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
10 mm.	TWM-101	22	14.5	22	38
11 mm.	TWM-111	22	16.5	22	38
12 mm.	TWM-121	22	17.5	22	38
13 mm.	TWM-131	22	18.5	22	38
14 mm.	TWM-141	22	20.5	22	38
15 mm.	TWM-151	22	22	22.5	38
16 mm.	TWM-161	22	22.5	22	38
17 mm.	TWM-171	22	24.5	23	38
18 mm.	TWM-181	22	25	24	38
19 mm.	TWM-191	22	26.5	25	38
20 mm.	TWM-201	22	27	25.5	38
21 mm.	TWM-211	22	28.5	27	38
22 mm.	TWM-221	22	30	28.5	38
23 mm.	TWM-231	22	32	30	38
24 mm.	TWM-241	22	32.5	31	38
25 mm.	TWM-251	22	34	32.5	38
26 mm.	TWM-261	25	36	35	41
27 mm.	TWM-271	25	36.5	35	41

310-TWM-Y 1/2" Drive Single Hex Set, 10 sockets, TWM-101 thru TWM-191, with A-269 Mounting Bracket and ten A-273B Socket Clips.

318-TWM 1/2" Drive Single Hex Set, 18 sockets, TWM-101 to TWM-271.

1/2" SQUARE DRIVE

(D) HEX HEAD WRENCHES

Complete Tool			Bit Stock No.	Rollpin Stock No.
Hex Size	Stock No.	Length		
6mm.	SAM-6	60	FAM-6-2	ESD-316
8mm.	SAM-8	60	FAM-8-2	ESD-329
10mm.	SAM-10	60	SAM-10-2	ME-2C-8
12mm.	SAM-12	79	SAM-12-2	ESD-311
14mm.	SAM-14	81	SAM-14-2	ESD-311
17mm.	SAM-17	93.5	SAM-17-2	ESD-306

METRIC VALVE GUIDE PILOTS



Needed for use on the more popular makes of foreign cars. These pilots lock securely and center correctly — each segment acts independently, compensating for wear in its own portion of the guide hole.

Stock No.	Guide Size	Overall Length	Stock No.	Guide Size	Overall Length
VX-236	6	102	VX-334	8.5	134
VX-255	6.5	115.5	VX-354	9.	134
VX-275	7	115.5	VX-374	9.5	140
VX-295	7.5	134	VX-393	10	140
VX-315	8	134			

3/4" SQUARE DRIVE LOXOCKETS

The loxocket feature has a locking pin instead of a friction ball in the square drive of the handles. This pin fits into the locking hole in the sockets and will not release by pulling like the friction ball grip. A small button is incorporated in each socket which, when depressed, contacts the pin in the handle, releasing it from the socket. Interchanging of units is fast . . . simple . . . easy, yet you have the advantage of a one-piece tool.

Loxockets listed below are all FLANK DRIVE except LDH-582 and LDH-682.

(E) DOUBLE HEXAGON FLANK DRIVE

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
19 mm.	LDH-242	32	28.5	36.5	51
24 mm.	LDHM-242	32	35	36.5	51
27 mm.	LDH-342	35	39.5	38	54
30 mm.	LDH-382	38	43	38	57
32 mm.	LDHM-322	38	44.5	38	57
35 mm.	LDH-442	39.5	49	41	58.5
*46 mm.	LDH-582	54	63.5	44.5	73
*54 mm.	LDH-682	63.5	74.5	44.5	82.5

*Standard Double Hex Openings

(F) DEEP SINGLE HEXAGON FLANK DRIVE

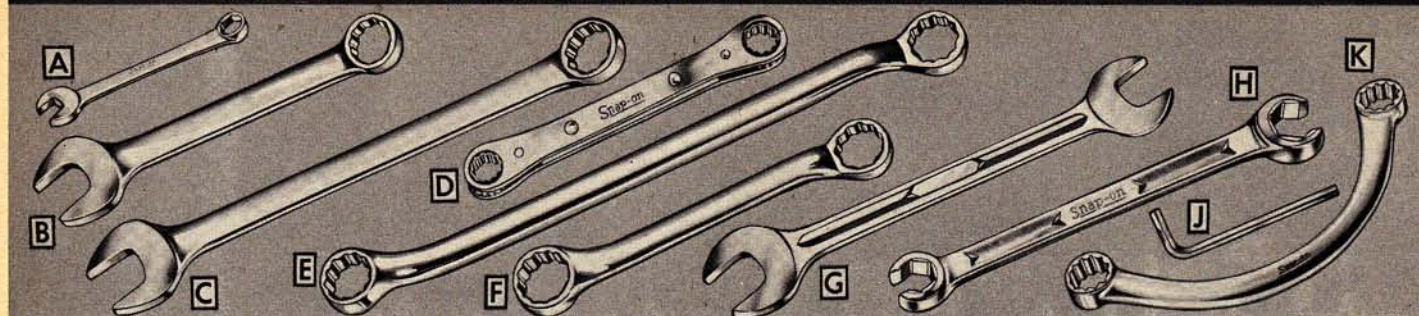
Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
27 mm.	LS-342	70	40	38	89
35 mm.	LS-442	70	49	41	89
38 mm.	LS-482	70	54	41	89

1" SQUARE DRIVE LOXOCKETS

DOUBLE HEXAGON

(See illustration on page 49)

Wrench Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
38 mm.	LDH-483	41	57	51	70
46 mm.	LDH-583	51	67	54	79
54 mm.	LDH-683	60	79	57	89



METRIC WRENCHES AND SETS — BOXOCKET OPENINGS ARE FLANK DRIVE

ALL SIZE SPECIFICATIONS ARE GIVEN IN MILLIMETERS

COMBINATION WRENCHES

FLANK DRIVE

(A) MIDGET SERIES

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
6	OXIM-6	10	13	76
7	OXIM-7	11	15	83
8	OXIM-8	12	17	88
9	OXIM-9	13	18	94

OXIM-704-K Set. Above 4 wrenches in C-41D Kit Bag.

OXIM-704 Set. Above set, tools only.

(B) SHORT HANDLE SERIES

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
6	OEXM-6	10	13	115
7	OEXM-7	11	15	120
8	OEXM-8	12	16.5	127
9	OEXM-9	13	18	129
10	OEXM-10	14.5	20	134
11	OEXM-11	16	23	138
12	OEXM-12	18	25	140
13	OEXM-13	19	27	146
14	OEXM-14	20	30	153
15	OEXM-15	21.5	31	156
16	OEXM-16	23	33	160
17	OEXM-17	24	35	164
18	OEXM-18	25	38	171
19	OEXM-19	27	39.5	178

OEXM-707 Set. Seven wrenches, OEXM-10-11-12-13-14-15-17.

OEXM-709-K Set. Nine wrenches, OEXM-10 through OEXM-18 in C-94 kit bag.

OEXM-709 Set. Above set, tools only.

OEXM-714 Set. Fourteen wrenches, OEXM-6 through OEXM-19.

(C) LONG HANDLE SERIES

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
10	OEXM-100	14.5	20	168
12	OEXM-120	19	27	195
13	OEXM-130	19	25	197
14	OEXM-140	21	30	203
15	OEXM-150	23	33	215
16	OEXM-160	23	33	221
17	OEXM-170	25	35	235
18	OEXM-180	26	36.5	236
19	OEXM-190	28	40	238
20	OEXM-200	30	43	279
21	OEXM-210	30	43	282
22	OEXM-220	32	46	304
23	OEXM-230	34	49	331
24	OEXM-240	34	49	331
27	OEXM-270	40	55.5	384
30	OEXM-300	44	61	416
32	OEXM-320	47	65	429

OEXM-711-K Set. Eleven wrenches, OEXM-120 through OEXM-220, in C-116B kit bag.

OEXM-716 Set. Sixteen wrenches, OEXM-120 through OEXM-320.

The Metric Boxocket openings in wrenches listed on this page have the new SNAP-ON "Flank-Drive" hex broaching described on page 6.

(D) RATCHETING BOXOCKETS DOUBLE HEX—FLANK DRIVE

Wrench Size	Stock Numbers	Head Diameter	Head Depths	Overall Length
10 & 11	RBM-1011	19 & 22	9	140
12 & 13	RBM-1213	24 & 25	9.5	177
14 & 16	RBM-1416	29 & 32	10	202
17 & 19	RBM-1719	35 & 38	11	219

BOXOCKET WRENCHES DOUBLE HEX—FLANK DRIVE

(E) SHORT HANDLE SERIES

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
6 & 7	XSM-67	9.5 & 11.5	5 & 6	106
*6 & 7	XSM-67S	9.5 & 11.5	5 & 6	106
8 & 9	XSM-89	11.5 & 13.5	5.5 & 6.5	115
*8 & 9	XSM-89S	11.5 & 13.5	5.5 & 6.5	115
9 & 10	XSM-910	12.5 & 14	6.5 & 7	122
11 & 12	XSM-1112	15.5 & 17.5	7 & 8	131
13 & 14	XSM-1314	18.5 & 20	8.75 & 9	140
15 & 16	XSM-1516	21 & 22	9 & 9.5	149
17 & 19	XSM-1719	24 & 26.5	10 & 12	166
18 & 20	XSM-1820	25 & 28	11 & 12	167

*These two wrenches are single hexagon.

XSM-608-K Set. 8 Wrenches, XSM-67 through XSM-1820 except XSM-67S and XSM-89S in C-80D kit bag.

XSM-608 Set. Above set, tools only.

XSM-607 Set. 7 Wrenches, XSM-67 through XSM-1719.

BOXOCKET WRENCHES DOUBLE HEX—FLANK DRIVE

(F) LONG HANDLE SERIES

Wrench Size	Stock No.	Head Diameters	Head Depths	Overall Length
8 & 10	XM-810	14.5 & 14.5	8 & 8	208
10 & 11	*XM-1011	15 & 16.5	8 & 9	210
11 & 14	XM-1114	19 & 21	9 & 9.5	230
12 & 13	*XM-1213	17.5 & 19	9 & 10	229
12 & 14	XM-1214	19 & 21	9 & 9.5	230
13 & 15	XM-1315	18.5 & 22	9 & 11	237
14 & 15	*XM-1415	20.5 & 22	9.5 & 11	239
14 & 17	*XM-1417	21 & 25	9.5 & 11	245
16 & 17	*XM-1617	23.5 & 24.5	11 & 11	254
18 & 19	*XM-1819	26 & 27.5	12.5 & 12.5	292
20 & 21	*XM-2021	28.5 & 30	12.5 & 12.5	311
22 & 23	*XM-2223	31 & 33	14 & 16	327
22 & 24	XM-2224	32 & 34	14 & 16	330
24 & 25	*XM-2425	34 & 35	16 & 16	332
24 & 27	*XM-2427	34 & 36	16 & 16	332
26 & 27	*XM-2627	37 & 37.5	16 & 16	368
27 & 32	*XM-2732	37.5 & 44	16 & 19	409
28 & 29	*XM-2829	41 & 41.5	17 & 17	387
30 & 32	*XM-3032	42 & 44	17 & 19	410
31 & 32	*XM-3132	44 & 44	19 & 19	412

XM-608 Set. 8 wrenches, one each of above Boxocket wrenches marked with the symbol (+).

XM-614-K Metric Long Series Boxocket Wrench Set. 14 wrenches, one each of above marked with an asterisk (*) in C-141B kit bag.

XM-614 Set. Above set, tools only.

(G) OPEN END WRENCHES

Sizes in mm.	Stock No.	Head Diameters	Head Depth	Overall Length
6 & 7	*VSM-67	13.5 & 16.5	4	101
8 & 9	VSM-89	16.5 & 20	4.5	116
8 & 10	*VSM-810	16.5 & 20	4.5	116
9 & 11	*VSM-911	20 & 23	5	130
11 & 14	VSM-1114	23 & 26	5.5	144
12 & 13	*VSM-1213	27 & 29	6	159
12 & 14	VSM-1214	27 & 29	6	159
13 & 15	VSM-1315	27 & 29	6	159
14 & 15	*VSM-1415	30 & 33	6.5	173
14 & 17	VSM-1417	30 & 33	6.5	173
16 & 18	*VSM-1618	33 & 40	7	203
17 & 19	*VSM-1719	36.5 & 36.5	7	213
20 & 22	*VSM-2022	40.5 & 43	8	246
21 & 23	*VSM-2123	46 & 49	9	292
22 & 24	VSM-2224	46 & 49	9	292
24 & 26	*VSM-2426	49 & 52	9.5	317
24 & 27	VSM-2427	49 & 52	9.5	317
25 & 28	*VSM-2528	49 & 52	9.5	317
27 & 29	*VSM-2729	55.5 & 66.5	11	363
27 & 32	VSM-2732	55.5 & 66.5	11	363
28 & 32	VSM-2832	55.5 & 66.5	11	363
30 & 32	*VSM-3032	55.5 & 66.5	11	363

OEM-809 Set. 8 Wrenches, one each of the above Open End wrenches marked with the symbol (+).

OEM-813-K Metric Open End Wrench Set. 13 wrenches, one of each of above marked with an asterisk (*), in C-135B kit bag.

OEM-813 Set. Above set, tools only.

(H) FLARE NUT WRENCHES SINGLE HEX—FLANK DRIVE

Sizes in mm.	Stock No.	Head Dia. in mm.	Head Depth in mm.	Length in mm.
9 & 11	RXM-911S	20 & 22	9 & 10	140
10 & 12	RXM-1012S	22 & 25	10 & 10	176
13 & 14	RXM-1314S	25 & 26	10 & 11	165
15 & 17	RXM-1517S	27 & 29	11 & 11	203
19 & 21	RXM-1921S	31 & 34	13 & 14	225

RXM-605-K Set. The above five Flare Nut wrenches, in C-50B kit bag.

RXM-605 Set. Above set without kit bag.

(J) HEX HEAD WRENCHES

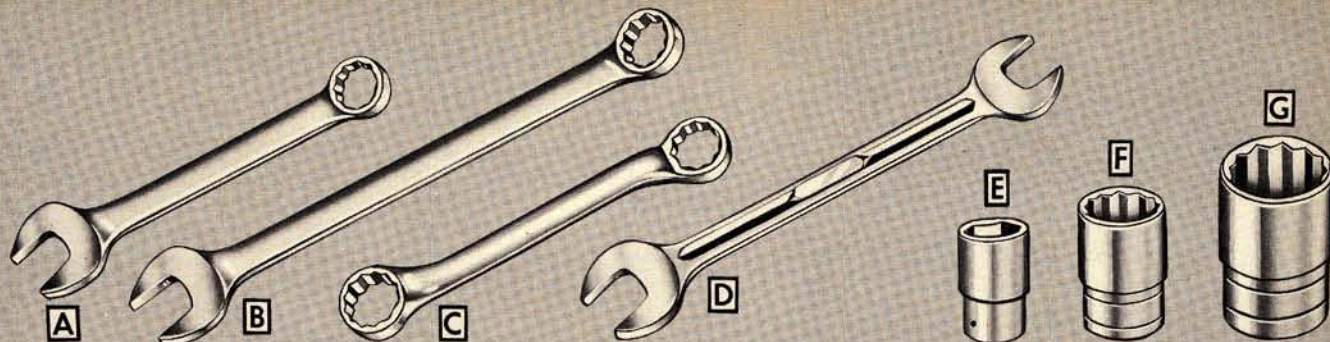
Number	Size	Number	Size
AWM-2C	2 mm.	AWM-8C	8 mm.
AWM-2 1/2 C	2.5 mm.	AWM-10C	10 mm.
AWM-3C	3 mm.	AWM-12C	12 mm.
AWM-4C	4 mm.	AWM-14C	14 mm.
AWM-5C	5 mm.	AWM-17C	17 mm.
AWM-6C	6 mm.	AWM-19C	19 mm.

AWM-120C-K Set. 12 Metric wrenches, AWM-2C through AWM-19C, in C-84B kit bag.

AWM-90C-K Set. 9 Metric wrenches, AWM-2C through AWM-12C, in the C-15B kit bag.

(K) HALF MOON BOXOCKETS

Size in mm.	Stock No.	Head Diameters	Handle Radius	Length
11 & 13	CXM-1113	16 & 18	63.5	144
14 & 17	CXM-1417	20 & 24	72	166.5
15 & 19	CXM-1519	22 & 25.5	86	197



BRITISH STANDARD WRENCHES

(A) SHORT HANDLE COMBINATION WRENCHES

British Bolt Size	Stock Number	Head Diameter		Overall Length
		Box End	Open End	
3/16"	WOEX-6A	9/16"	25/32"	5 1/4"
1BA	WOEX-70	9/16"	25/32"	5 1/4"
OBA	WOEX-80	41/64"	29/32"	5 3/8"
1/4"	WOEX-90	21/32"	29/32"	5 3/8"
5/16"	WOEX-100	13/16"	13/16"	6"
3/8"	WOEX-110	57/64"	15/16"	6 1/4"
7/16"	WOEX-120	31/32"	1 1/16"	6 1/2"

WOEX-707-K British Standard Short Combination Wrench Set. 7 wrenches, WOEX-6A through WOEX-120 in C-74D kit bag.

WOEX-707 Set. Above set without the kit bag.

(B) LONG HANDLE COMBINATION WRENCHES

British Bolt Size	Stock Number	Head Diameter		Overall Length
		Box End	Open End	
5/16"	WOEX-10	53/64"	13/16"	8 1/4"
3/8"	WOEX-11	59/64"	15/16"	8 5/8"
7/16"	WOEX-12	1 1/64"	1 1/16"	9 3/4"
1 1/2"	WOEX-13	13/16"	1 1/16"	11"

WOEXL-704 British Standard Long Combination Wrench Set. 4 wrenches, WOEX-10 through WOEX-13.

(C) SHORT HANDLE BOXOCKET WRENCHES

British Bolt Size	Stock Number	Head Diameters	Length
3/16" & 1/4"	WXS-6A9	17/32" & 41/64"	4 7/8"
1/4" & 5/16"	WXS-910	41/64" & 47/64"	5 5/16"
5/16" & 3/8"	WXS-1011	3/4" & 27/32"	5 5/16"
3/8" & 7/16"	WXS-1112	27/32" & 1"	6 1/4"
7/16" & 1/2"	WXS-1213	63/64" & 17/64"	6 11/16"
1/2" & 9/16"	WXS-1314	1 1/4" & 1 1/32"	8 5/16"

WXS-606-K British Standard Short Boxocket Wrench Set. 6 wrenches, WXS-6A9 through WXS-1314 in C-62B kit bag.

WXS-606 Set. Above set without the kit bag.

(D) OPEN END WRENCHES

British Bolt Size	Stock Number	Head Diameters	Length
3/16" & 1/4"	VS-68	25/32" & 29/32"	5 1/8"
1/4" & 5/16"	VS-810	1 1/16" & 1 3/16"	6 1/4"
5/16" & 3/8"	VS-1012	1 3/16" & 1 5/16"	6 13/16"
3/8" & 7/16"	VS-1214	1 5/16" & 1 9/16"	8"
7/16" & 1/2"	VS-1416	1 9/16" & 1 11/16"	10 1/4"
1/2" & 9/16"	VS-1618	1 9/16" & 1 13/16"	10 3/4"
9/16" & 5/8"	VS-1820	1 5/8" & 2 1/16"	12 1/2"
5/8" & 11/16"	VS-2022	2 1/16" & 2 5/16"	13 3/8"
1 1/16" & 3/4"	VS-2228	2 5/16" & 2 3/8"	14 1/4"

VS-809-K British Standard Open End Wrench Set. 9 wrenches, VS-68 through VS-2228 in C-91B kit bag.

VS-809 Set. Above set without the kit bag.

BRITISH STANDARD SIZES

HOW TO SELECT THE RIGHT SIZE WRENCH

The nominal wrench size is the diameter across the flats of the bolt head or nut. Whitworth wrenches are listed herein with these nominal sizes but are actually a few thousandths larger to permit proper operation.

Nominal Wrench Sizes	Fit British Standard Bolts and Nuts	
	After 1951 BA, BSF, BSW	Before 1951 BSW
.172"	7BA	—
.193"	6BA	—
.220"	5BA	—
.248"	4BA	—
.282"	3BA	—
.324"	2BA	—
.338"	3/16"	1/8"
.365"	1BA	—
.413"	OBA	—
.448"	1/4"	3/16"
.525"	5/16"	1/4"
.600"	3/8"	5/16"
.710"	7/16"	3/8"
.820"	1/2"	7/16"
.920"	9/16"	1/2"
1.010"	5/8"	9/16"
1.100"	—	5/8"
1.200"	3/4"	11/16"
1.300"	7/8"	3/4"
1.390"	—	13/16"
1.480"	1"	7/8"
1.574"	—	15/16"
1.670"	1 1/8"	1"
1.860"	1 1/4"	1 1/8"
2.050"	1 3/8"	1 1/4"

BRITISH STANDARD SOCKET WRENCHES

1/4" SQUARE DRIVE (E) SINGLE HEXAGON

British Bolt Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
2BA	WTM-96	17/32"	7/16"	7/16"	7/8"
3/16"	WTM-96A	17/32"	1/2"	1/2"	7/8"
1/4"	WTM-99	17/32"	5/8"	9/16"	7/8"
5/16"	WTM-100	17/32"	11/16"	19/32"	7/8"
3/8"	WTM-101	7/16"	7/8"	3/4"	7/8"

105-WTM 1/4" Drive Single Hex Set. 5 sockets, WTM-96 to WTM-101.

3/8" SQUARE DRIVE (F) DOUBLE HEXAGON

British Bolt Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
4BA	*WF-94	7/16"	25/64"	21/32"	29/32"
3BA	*WF-95	7/16"	25/64"	21/32"	29/32"
2BA	WF-96	7/16"	29/64"	11/16"	29/32"
3/16"	WF-96A	7/16"	35/64"	11/16"	29/32"
1BA	WF-97	7/16"	35/64"	11/16"	29/32"
OBA	WF-98	7/16"	39/64"	11/16"	29/32"
1/4"	WF-99	7/16"	5/8"	11/16"	29/32"
5/16"	WF-100	1/2"	3/4"	11/16"	15/16"
3/8"	WF-101	9/16"	13/16"	3/4"	1"
7/16"	WF-102	5/8"	31/32"	29/32"	1 1/16"
1/2"	WF-103	11/16"	1 1/8"	1 1/32"	1 5/32"
9/16"	WF-104	3/4"	1 1/4"	1 3/16"	1 5/8"

* Single Hexagon.
212-WF-T 3/8" Drive Set. 12 sockets, WF-94 to WF-104, in KTA-232B Tray.
212-WF Set. Above set, tools only.

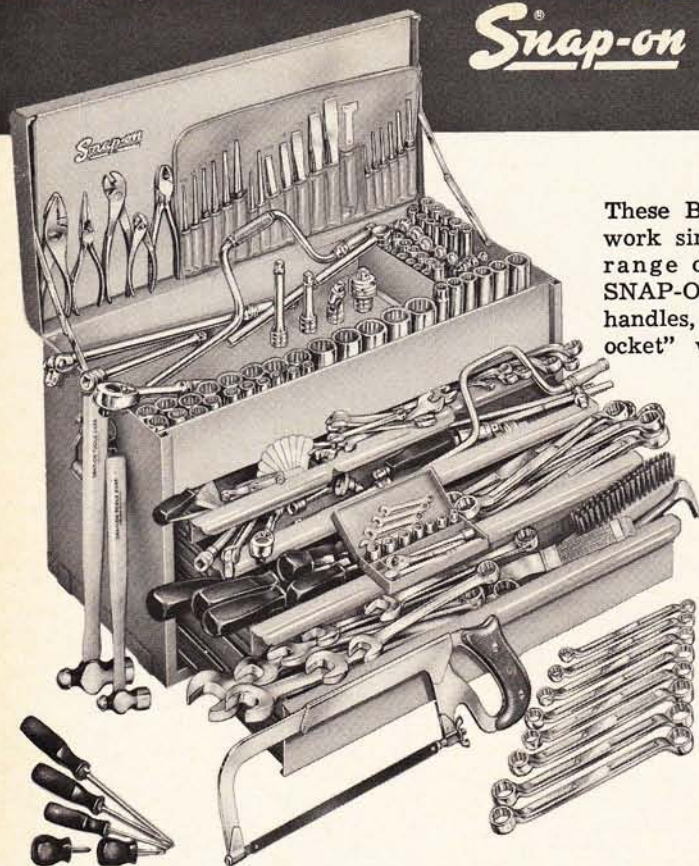
1/2" SQUARE DRIVE (G) DOUBLE HEXAGON

British Bolt Size	Stock No.	Bolt Clearance Depth	Outside Diameter		Length
			Socket End	Handle End	
3/16"	WSW-96A	7/8"	37/64"	7/8"	1 1/2"
OBA	WSW-98	7/8"	21/32"	7/8"	1 1/2"
1/4"	WSW-99	7/8"	11/16"	7/8"	1 1/2"
5/16"	WSW-100	7/8"	51/64"	7/8"	1 1/2"
3/8"	WSW-101	7/8"	29/32"	7/8"	1 1/2"
7/16"	WSW-102	7/8"	1"	15/16"	1 1/2"
1/2"	WSW-103	7/8"	1 1/8"	1 1/16"	1 1/2"
9/16"	WSW-104	7/8"	1 9/32"	1 7/32"	1 1/2"
5/8"	WSW-105	7/8"	1 11/32"	1 9/32"	1 1/2"
1 1/16"	WSW-106	1 1/8"	1 1/2"	1 7/16"	1 3/4"
3/4" & 13/16"	WSW-107	1 1/4"	1 5/8"	1 9/16"	1 3/4"
7/8"	WSW-108	1 1/4"	1 3/4"	1 11/16"	1 7/8"

312-WSW 1/2" Drive Double Hex Set. 12 sockets, WSW-96A to WSW-108.

Snap-on

COMPLETE TOOL SETS FOR USE ON BRITISH AND EUROPEAN CARS



These BIG tool sets help speed work since they contain a wide range of tools. Included are SNAP-ON socket wrenches and handles, combination and "Box-socket" wrenches, pliers, screw-

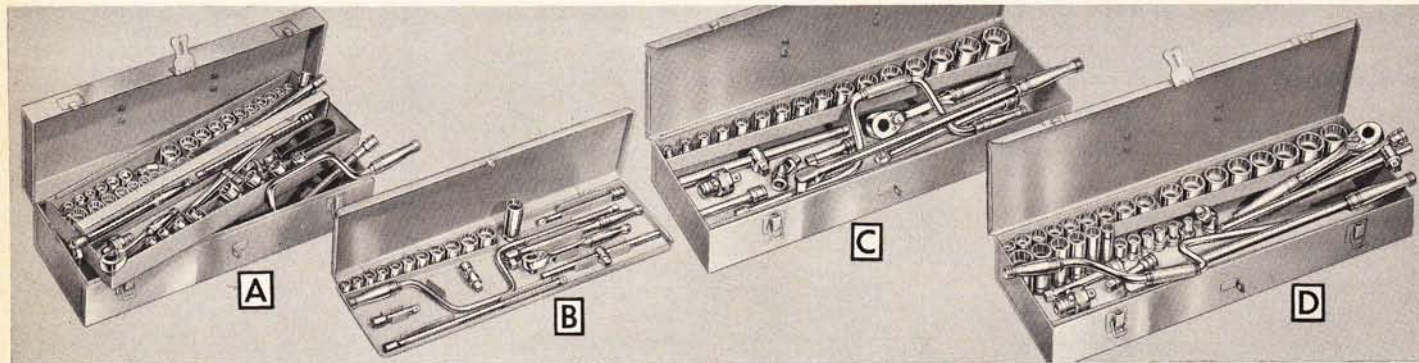
drivers, valve tools, hammers, chisels and punches. Housed in the famous KRA-56A metal tool chest with 6 drawers and lock so your tools are protected. The ideal tool sets for many kinds of work.

Contents of 5187-GM-B Set and 5123-GW-B Set

Set or Tool Description	METRIC 5187 GM-B Set	BRITISH STD. 5123 GW-B Set
Midget Socket Wrenches	114-MTM-B Set	108-WTM-B Set
Ferret Socket Wrenches	249-MF Set	224-WF Set
Master Socket Wrenches	338-MM Set	321-MW Set
Combination Wrenches	OEXM-716 Set	WOEXS-707 Set
Open End Wrenches	.....	VS8-809 Set
Long Boxsocket Wrenches	XM-614 Set	.....
Dwarf Boxsocket Wrenches	XSM-608 Set	WXS-606 Set
Punches and Chisels	PPC-200-K Set	PPC-200-K Set
Phillips Screw Drivers	SSDP-50 Set	SSDP-50 Set
Standard Screw Drivers	SSDS-50 Set	SSDS-50 Set
Spark Test Screw Driver	SSD-145	SSD-145
Screw Starter	SS-5	SS-5
4 oz. Ball Peen Hammer	BP-204	BP-204
12 oz. Ball Peen Hammer	BP-212	BP-212
1 lb. Plastic Tip Hammer	BH-92	BH-92
Hack Saw Frame	HS-8	HS-8
Wire Brush	AC-58B	AC-58-B
5" Gripping Plier	No. 50C	No. 50C
7 1/2" Gripping Plier	No. 47	No. 47
7" Needle Nose Plier	No. 196	No. 196
7 1/4" Diagonal Cutter	No. 87	No. 87
7 3/4" Battery Plier	No. 208A	No. 208A
Carbon Scraper	CS-1	CS-1
16" Pry Bar	No. 1650	No. 1650
Spark Plug Gap Gauge	FB-301	FB-301
Feeler Gauge	FB-326	FB-326
Ignition Point File	HB-5	HB-5
Spark Plug Flexocket	S-9704B-FU	S-9704B-FU
Cotter Pin Puller	CP-3A	CP-3A
Tool Chest	KRA-56A	KRA-56A

5187-GM-B Metric Series Service Tool Set consisting of 187 tools as listed to right in KRA-56A Metal Chest.

5123-GW-B British Standard Service Tool Set consisting of 123 tools as listed to right in KRA-56A Metal Chest.



A HIGH QUALITY Snap-on TOOL SET FOR EVERY SIZE JOB

MIDGET - 1/4" SQUARE DRIVE SETS

114-MTM-B Metric Midget Set. Includes TM-70B Ratchet, TM-10F Nut Spinner, TMX-4 Extension Bar, 111-MTM Socket Set and KRA-222B Box.

108-WTM-B British-Standard Set. Includes TM-70B Ratchet, TM-10F Nut Spinner, TMX-4 Extension Bar, 105-WTM Socket Set, KRA-222B Box.

49-PIECE METRIC FERRET SET

(A) 249-MF-B Metric Ferret (3/8" Drive) Set. Includes: F-710D Ratchet, F-67B Ratchet Adaptor, FRS-70 Ratchet Spinner, F-4LA Speeder, F-10LB Nut Spinner, F-40A Handle, F-5L Slide Bar, FX-61 Flexextension, FX-2, FX-6, FX-11 Extension Bars, FU-8A Universal, 211-FM Socket Set, 211-SFM Socket Set, 206-FSM Socket Set, 209-FUM Flexocket Set and KRA-250 Box.

249-MF Set. Same as above but without box.

24-PIECE BRITISH-STD FERRET SET

(A) 224-WF-B British-Standard ferret (3/8" Drive) Set. Includes: F-710D Ratchet, F-67B Ratchet Adaptor, FRS-70 Ratchet Spinner, F-4LA Speeder, F-10LB Nut Spinner, F-40A Handle, F-5L Slide Bar, FX-61 Flexextension, FX-2, FX-6, FX-11 Extension Bars, FU-8A Universal, 212-WF Socket Set, and KRA-250 Box.

224-WF Set. Same as above but without box.

20-PIECE METRIC FERRET SET

(B) 220A-M-B Metric Ferret (3/8" Drive) Set consisting of the following: F-710D Ratchet, F-4L Speeder Handle, F-10LB Nut Spinner, F-5L Slide Bar, FX-2, FX-6, FX-11 Extension Bars, FU-8A Universal Joint and 11 Double Hex Sockets, F-9M through F-19M and SF-261 14 mm, spark plug socket all packed in the KRA-281 Metal Box as illustrated.

220A-M. Same Set as above but without box.

21-PIECE BRITISH-STD FERRET SET

(B) 221A-W-B British-Standard Ferret (3/8" Drive) Set consisting of the following: F-710D Ratchet, F-4L Speeder Handle, F-10LB Nut Spinner, F-5L Slide Bar, FX-2, FX-6, FX-11 Extension Bars, FU-8A Universal Joint, 12 Double Hex Sockets WF-94 through WF-104 and SF-261 spark plug socket, all packed in the KRA-281 Metal Box as illustrated.

221A-W. Same Set as above but without box.

38-PIECE METRIC MASTER SETS

(D) 338-MM-B Metric Master (1/2" Drive) Set consisting of the following: SL-710 Ratchet, 67-C Ratchet Adaptor, S-4 Nut Speeder, SN-18A Nut Spinner, S-12L Slide Bar, SX-3, SX-5, SX-10 Extension Bars, S-8 Universal

25-PIECE METRIC MASTER SETS

(C) 325-MM-B Metric Master (1/2" Drive) Set consisting of the following: SL-710 Ratchet, 67-C Ratchet Adaptor, S-4 Nut Speeder, SN-18A Nut Spinner, S-12L Slide Bar, SX-3, SX-5, SX-10 Extension Bars, S-8 Universal Joint and 16 Double Hex Sockets SW-10M through SW-25M all packed in the KRA-280 Metal Box as illustrated.

325-MM. Same Set as above but without box.

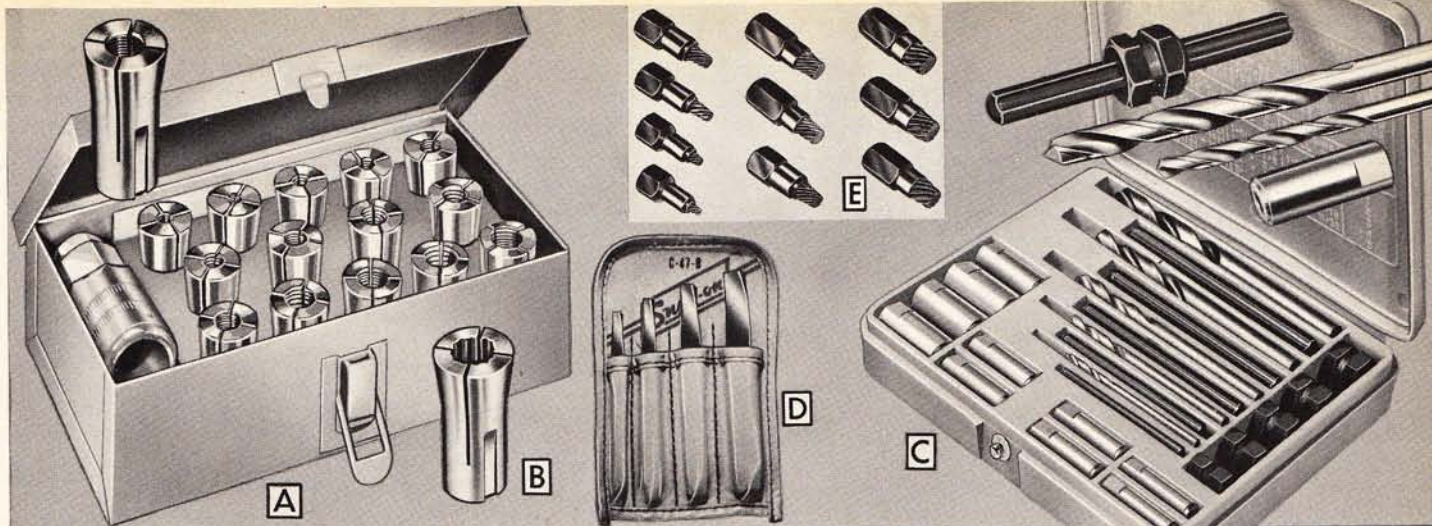
21-PIECE BRITISH-STD MASTER SETS

(C) 321-MW-B British-Standard Master (1/2" Drive) Set consisting of the following: SL-710 Ratchet, 67-C Ratchet Adaptor, S-4 Nut Speeder, SN-18A Nut Spinner, S-12L Slide Bar, SX-3, SX-5, SX-10 Extension Bars, S-8 Universal Joint and 12 Double Hex Sockets WSW-96A through WSW-108 all packed in the KRA-280 Metal Box.

321-MW. Same Set as above but without box.

Joint, 23 Double Hex Sockets SW-10M through SW-32M and 6 Deep Double Hex Sockets S-14M through S-27M all packed in the KRA-280 Metal Box as illustrated.

338-MM. Same Set as above but without box.



STUD REMOVERS AND RESETTERS

▲ (A) COLLET-TYPE REMOVERS AND RESETTERS

These powerful tools are available in three different series to handle studs ranging from No. 10 to $\frac{5}{8}$ " in diameter. The tapered collets thread on the studs and slip into the housing of the unit. Tightening the bolt on top draws the collet into the housing, locking the puller onto the stud with a slip-proof grip. Because this grip does not damage the threads a stud may be reset.

The collets will work on a stud if only two or three threads are exposed or remain on the broken end. Smooth studs or dowels may be threaded with the correct size die and then removed in the usual manner. The standard housing is $1\frac{1}{8}$ " diameter and fits any $1\frac{1}{8}$ " wrench.

STANDARD SIZE PULLER SETS

CG-515-B Complete Set. Contains the CG-500-2 Housing and 500-series collets except CG-500-17 and CG-500-18. Has a range of $\frac{1}{4}$ " to $\frac{5}{8}$ ". Complete in metal box KRA-150.

CG-515 Set. Above set without the box.

CG-500 Set. Contains the CG-500-2 Housing and the CG-500-8, CG-500-10 and CG-500-12 collets. For use on $\frac{3}{8}$ "-24, $\frac{1}{2}$ "-20 and $\frac{1}{2}$ "-20 threads.

HOUSING AND COLLETS

Size	Stock No.
Housing	CG-500-2
10-24	CG-500-17
10-32	CG-500-18
$\frac{1}{4}$ "-20	CG-500-3
$\frac{1}{4}$ "-28	CG-500-4
$\frac{5}{16}$ "-18	CG-500-5
$\frac{5}{16}$ "-24	CG-500-6
$\frac{3}{8}$ "-16	CG-500-7
$\frac{3}{8}$ "-24	CG-500-8
$\frac{1}{2}$ "-14	CG-500-9
$\frac{1}{2}$ "-20	CG-500-10
$\frac{1}{2}$ "-13	CG-500-11
$\frac{1}{2}$ "-20	CG-500-12
$\frac{5}{8}$ "-12	CG-500-13
$\frac{5}{8}$ "-18	CG-500-14
$\frac{5}{8}$ "-11	CG-500-15
$\frac{5}{8}$ "-18	CG-500-16

Note: Larger sizes for bolts up to 3" diameter are available.

▲ (B) SERRATED COLLETS

Designed for use with CG-500-2 Housing to remove plain or broken $\frac{1}{4}$ " to $\frac{1}{2}$ " studs. The serrated gripping portions of these collets differ from our standard collets which are threaded. These collets are necessary for removing smooth walled studs which cannot be removed with standard collets due to the lack of gripping surface.

CG-500-20 $\frac{1}{4}$ " Serrated Collet **CG-500-22** $\frac{3}{8}$ " Serrated Collet
CG-500-21 $\frac{5}{16}$ " Serrated Collet **CG-500-23** $\frac{1}{2}$ " Serrated Collet
CG-500-24 $\frac{1}{2}$ " Serrated Collet

(E) MULTI-SPLINE EXTRACTOR SET

REX-10 Extractor Set. Consists of one each of the extractors listed below. Multi-Spline construction combines great strength and a secure grip on bolts to be removed. A shoulder located directly above the spline section provides a "seat" for bolts or studs to force against, thus increasing the grip and preventing the bolt from expanding. Bolts and studs being removed do not wedge on the extractors, but can normally be removed with the fingers after operation is completed. The extractor has a $\frac{1}{4}$ " hexagon end to fit a socket or other wrench.

Number	Size	Mark	Number	Size	Mark
REX-104	$\frac{1}{8}$ "	A	REX-109	$\frac{5}{32}$ "	F
REX-105	$\frac{9}{32}$ "	B	REX-110	$\frac{1}{16}$ "	G
REX-106	$\frac{3}{16}$ "	C	REX-111	$\frac{1}{32}$ "	H
REX-107	$\frac{7}{32}$ "	D	REX-112	$\frac{3}{8}$ "	I
REX-108	$\frac{1}{4}$ "	E	REX-113	$\frac{1}{2}$ "	J

CAM AND WEDGE-TYPE STUD PULLERS

- ▲ (F) **A-80A Stud Puller.** Patent No. 2,613,564. Capacity $\frac{1}{4}$ " to $\frac{1}{2}$ ". Three jaws built into the tool automatically close to stud size and grip when pressure is applied... release the pressure and the jaws release providing a "built in" ratchet action. Needs only 1" clearance between stud and any obstruction. $\frac{1}{2}$ " protrusion of stud provides a good grip, long studs can run through the top opening. Use with $\frac{1}{2}$ " square drive handle or 1" wrench.

- ▲ (G) **A-50 Stud Remover.** $\frac{7}{16}$ " to $\frac{1}{2}$ " capacity "V" shaped rack grips the stud as the unit is turned. Use $\frac{1}{2}$ " square drive handle. Grip releases when pressure is relieved. Unit consists of three parts, the housing, driving gear, and the A-50-3B $\frac{7}{16}$ "- $\frac{1}{2}$ " capacity rack.

A-50-4B Additional Optional Rack $\frac{7}{16}$ "- $\frac{3}{8}$ " capacity.

A-54 Stud Remover Set. $\frac{5}{16}$ " to $\frac{1}{2}$ " capacity. Consists of A-50 and A-50-4B.

(C) BROKEN SCREW, STUD OR PIPE EXTRACTORS

- ▲ **E-1020 Extractor Set.** Complete in E-1020B case as shown above. Contains one each of all the Drill Guides, Extractors and Special Drills listed at right. Extractors can be made up to 1" below surface.

These tools are straight from end to end... when driven into a drilled hole in the broken unit, they grip without reaming or slipping, and furthermore, will not expand or distort sidewalls of holes no matter how thin or how far the tool is driven in. Tightly embedded broken threaded ends can now be drilled out to thin walled shells, safely seized with one of these tools and easily turned out. This is the only basically correct method of doing the job... tapered extractors often expand the broken unit making it bind tighter than it did before.

3 STEPS IN EXTRACTING

1. A small hole is first drilled in the broken screw; if the screw is broken below the surface the correct size guide is used to center the drill.
2. The hole is enlarged to proper size to accept the extractor tool... correct drill sizes are shown under "Extractors."
3. The drill is removed and the extractor is driven into the drill hole. The broken end can then be turned out easily and quickly.

(D) TAPER-BIT SCREW EXTRACTOR SET

SR-40-K Screw Extractor Set. Tapered end of these extractors has a left hand twist which tends to bite deeper into the drilled stud as the extractor is turned. Tapping the extractor with a hammer drives it into the hole and the left hand twist often breaks the stud loose and makes it easier to turn out. The square shaft permits use of a wrench. Four sizes in C-47B kit bag.

SR-4 $\frac{1}{8}$ " Screw Extractor
SR-10 $\frac{3}{16}$ " Screw Extractor
SR-14 $\frac{7}{32}$ " Screw Extractor
SR-20 $\frac{1}{2}$ " Screw Extractor

DRILL GUIDES

No.	O.D.	I.D.	Use Drill
E-921	$\frac{9}{32}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "
E-1021	$\frac{5}{16}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "
E-1121	$\frac{11}{32}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "
E-1221	$\frac{3}{8}$ "	$\frac{1}{8}$ "	$\frac{1}{8}$ "
E-1321	$\frac{13}{32}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
E-1421	$\frac{7}{16}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
E-1521	$\frac{15}{32}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
E-1621	$\frac{1}{2}$ "	$\frac{3}{16}$ "	$\frac{3}{16}$ "
E-1721	$\frac{17}{32}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ "
E-1821	$\frac{9}{16}$ "	$\frac{1}{4}$ "	$\frac{1}{4}$ "

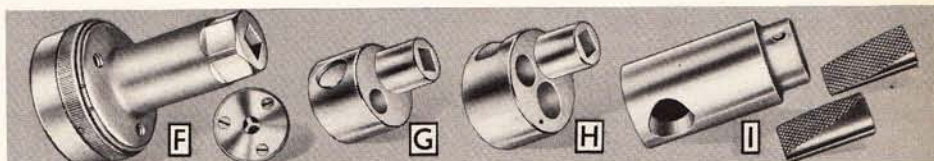
SCREW EXTRACTORS

No.	Screw Dia.	Use Drill	Lgth
E-1	$\frac{1}{4}$ "	$\frac{1}{8}$ "	$2\frac{3}{4}$ "
E-2	$\frac{5}{16}$ "	$\frac{3}{16}$ "	$2\frac{3}{4}$ "
E-3	$\frac{3}{8}$ "	$\frac{1}{4}$ "	$3\frac{1}{8}$ "
E-4	$\frac{7}{16}$ "	$\frac{5}{16}$ "	$3\frac{3}{8}$ "
E-5	$\frac{1}{2}$ "	$\frac{11}{32}$ "	$3\frac{3}{4}$ "

Each extractor has a special hexagon nut for convenient turning with a standard wrench.

FRACTIONAL DRILLS

Stock No.	Overall Length
DBF- $\frac{1}{8}$ "	$2\frac{3}{4}$ "
DBF- $\frac{3}{16}$ "	$3\frac{1}{2}$ "
DBF- $\frac{1}{4}$ "	4"
DBF- $\frac{5}{16}$ "	$4\frac{11}{16}$ "
DBF- $\frac{11}{32}$ "	$4\frac{7}{8}$ "



- ▲ (H) **A-36 Stud Remover.** $\frac{1}{2}$ " to $\frac{3}{4}$ " capacity. Knurled alloy steel wheel grips soft or hardened studs. The driving shank extends through both sides of the housing to provide a bearing surface on each side of the wheel and prevent binding. Use with $\frac{1}{2}$ " square drive handle.

A-36-1 Stud Remover Housing only.

A-36-2 Stud Remover Driving Shank.

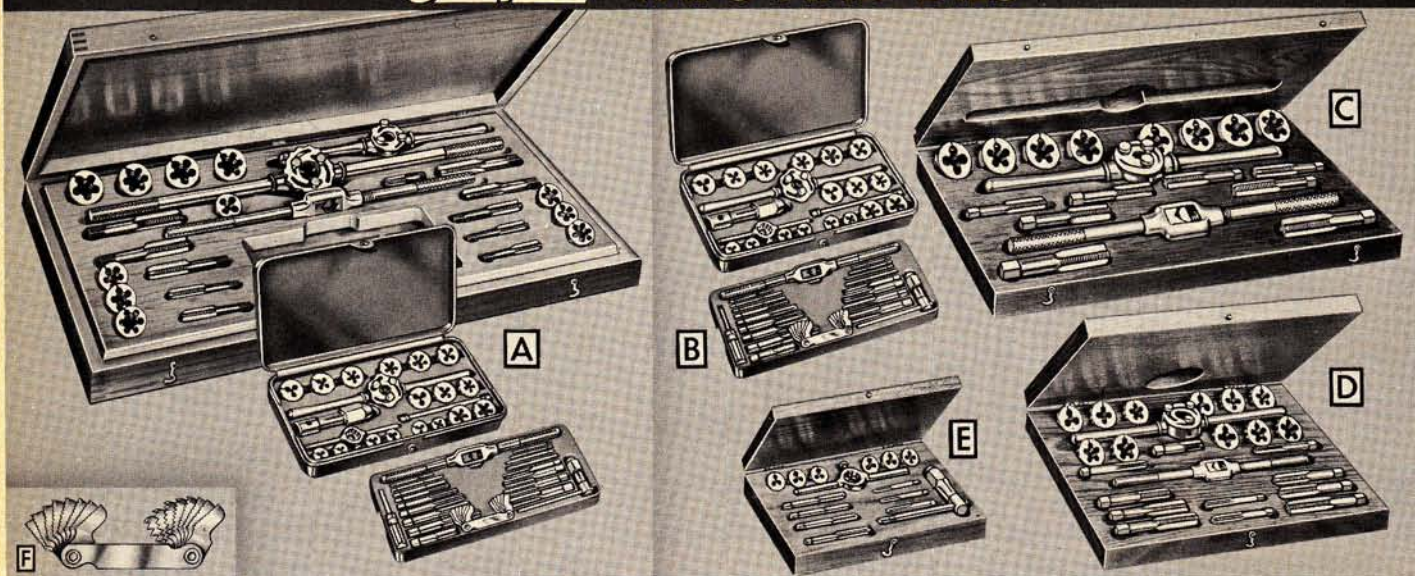
A-36-3 Stud Remover Gripping Wheel.

- ▲ (I) **LA-55A Heavy Duty Stud Puller.** $\frac{9}{16}$ " to 1" capacity. Works on the wedge principle: grip can be released by turning tool in reverse direction. Tool is machined from alloy steel. Two sizes of steel wedges included with the unit are heat treated to extreme hardness and are cross milled to assure a firm grip on the studs. Use with $\frac{3}{4}$ " square drive wrench handle.

▲ Federal Specs: GGG-E-936 applies to the E-1020 Extractor Set shown above.

GGG-S-775a applies to the Cam and Wedge-Type Stud Pullers indicated above by the symbol ▲.

Blue-Point TAPS AND DIES



BLUE-POINT Taps and Dies give you fine, tough thread cutting tools. Dies $\frac{1}{4}$ " to $\frac{1}{2}$ " are one-piece, double hex type . . . they can be turned with a one inch socket wrench where regular die stocks cannot be used. Machine screw dies 4-36 to 12-24 are $\frac{5}{16}$ " hexagon and dies $\frac{1}{2}$ " to 1" are one-piece circular type. Both types adjust to give a tight or loose fit to your thread—a small adjusting screw changes the nominal die size from .001" to .003" under or over. The three largest die stocks are self-centering and adjust to the diameter of the rod or bolt, insuring an accurate, straight thread . . . prevents dies from breakage due to tilting.

DIE STOCKS AND TAP WRENCHES

TD-3	Die Stock	For hexagon dies 4-36 to 12-24
TD-10	Die Stock	Self-centering for 1" diameter hex dies
TD-35	Die Stock	Self-centering for 1½" diameter round dies
TD-40	Die Stock	Self-center for 2" diameter round dies
TD-4	Tap Wrench	4-jaw chuck for 6-32 to 10-32 taps
TD-6	Tap Wrench	2-jaw chuck, for ¼" to ½" taps
TD-7	Tap Wrench	2-jaw chuck, for ½" to 1" taps
TD-8	Tap Wrench	4-jaw chuck, for 7/32" to 5/16" taps
TD-50	Tap Wrench	4-jaw chuck, for ¼" to ½" taps
TD-88	Tap Wrench	Clamp-type, for ½" to 1" taps
TD-98	Tap Wrench	Adjustable clamp-type for ½" to 1" taps

TAP AND DIE SETS

A TD-9902 Complete Tap and Die Set. Gives you all the thread cutting tools you need to handle machine screw sizes 4-36 to 12-24, and N.C. and N.F. sizes $\frac{1}{4}$ " through 1". The individual tap and die sizes included are as follows: Machine screw sizes 4-36, 6-32, 8-32, 10-24, 10-32, 12-24. National Coarse sizes are $\frac{1}{4}$ "-20, $\frac{5}{16}$ "-18, $\frac{3}{8}$ "-16, $\frac{7}{16}$ "-14, $\frac{1}{2}$ "-13, $\frac{9}{16}$ "-12, $\frac{5}{8}$ "-11, $\frac{3}{4}$ "-10, $\frac{7}{8}$ "-9, 1"-8. National Fine sizes are $\frac{1}{4}$ "-28, $\frac{5}{16}$ "-24, $\frac{3}{8}$ "-24, $\frac{7}{16}$ "-20, $\frac{1}{2}$ "-20, $\frac{9}{16}$ "-18, $\frac{5}{8}$ "-18, $\frac{3}{4}$ "-16, $\frac{7}{8}$ "-14 and 1"-14. Pipe sizes included are $\frac{1}{8}$ " and $\frac{1}{4}$ ".

Set includes Tap Wrenches, TD-4 "T" type, TD-50 "T" type, TD-88 Clamp type and TD-98 Clamp type. Die stocks include TD-3 for hex dies 4-36 to 12-24, TD-10 self-centering for 1½" diameter hex dies, TD-35 self-centering for 1½" diameter round dies and TD-40 self-centering for 2" diameter round dies. The TD-1040 Screw Pitch Gauge and a small screw driver for adjusting the size of the dies from .001" to .003" under or over normal size are also included. Machine screw sizes and N.C. and N.F. sizes up to 1½" are contained in the TD-2425-1 Plastic case and Tray. This plastic case can be removed from its receptacle in the large wood case TD-9900-1.

TD-9900-1 Fitted wood case only.

B TD-2425 Super Set. Light and compact in TD-2425-1 red plastic case with lift-out tray. Contains machine screw sizes 4-36, 6-32, 8-32, 10-24, 10-32, 12-24. N.C. sizes $\frac{1}{4}$ "-20, $\frac{5}{16}$ "-18, $\frac{3}{8}$ "-16, $\frac{7}{16}$ "-14, $\frac{1}{2}$ "-13. N.F. sizes $\frac{1}{4}$ "-28, $\frac{5}{16}$ "-24, $\frac{3}{8}$ "-24, $\frac{7}{16}$ "-20, $\frac{1}{2}$ "-20, also $\frac{3}{4}$ " pipe thread. Also includes TD-10 Die Stock, TD-3 Die Stock, TD-4 "T" Tap Wrench, TD-50 "T" Tap Wrench, TD-88 Tap and Reamer Wrench, TD-1040 Screw Pitch Gauge and a Screwdriver.

TD-2425-1 Plastic Case and Tray Only.

C TD-7800 Intermediate Set. Handles N.F. and N.C. thread sizes $\frac{1}{2}$ " to $\frac{3}{4}$ ". The dies in this set are one-piece 1½" diameter round type. N.F. sizes are $\frac{1}{2}$ "-20, $\frac{5}{16}$ "-18, $\frac{3}{8}$ "-18, $\frac{7}{16}$ "-16. N.C. sizes are $\frac{1}{2}$ "-13, $\frac{9}{16}$ "-12, $\frac{5}{8}$ "-11, $\frac{3}{4}$ "-10. The TD-35 Self-centering Die Stock and TD-98 Tap Wrench complete the set which comes in a sturdy fitted wood case as illustrated.

TD-7800-1 Fitted Wood Case only.

Metric sizes of Taps and Dies are listed on page 54.

D TD-2400A Standard Set. Dies are one-piece double hexagon type and can be used with a 1" socket in close quarters. This popular set contains N.F. sizes $\frac{1}{4}$ "-28, $\frac{5}{16}$ "-24, $\frac{3}{8}$ "-24, $\frac{7}{16}$ "-20, $\frac{1}{2}$ "-20; N.C. sizes $\frac{1}{4}$ "-20, $\frac{5}{16}$ "-18, $\frac{3}{8}$ "-16, $\frac{7}{16}$ "-14, $\frac{1}{2}$ "-13 and $\frac{3}{8}$ " pipe thread, together with TD-88 Tap Wrench and TD-10 self-centering Die Stock. In fitted wood case.

TD-2400A-1 Fitted Wood Case only.

E TD-2500 Machine Screw Set. A set of high quality taps and dies to handle those small machine screw threading jobs. Dies are one-piece hexagon type, adjustable from .001" to .003" under or oversize. Includes taps and dies sizes 4-36, 6-32, 8-32, 10-24, 10-32 and 12-24 listed below, and the TD-4 4-Jaw Tap Wrench and TD-3 Die Stock. In fitted wood case.

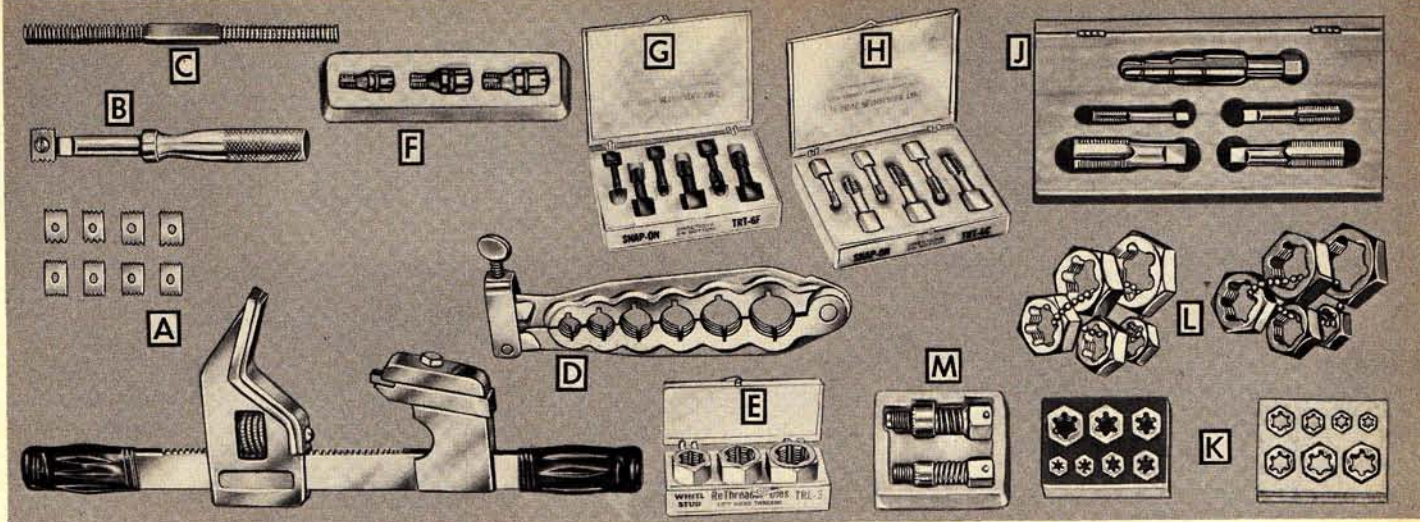
TD-2500-1 Fitted Wood Case only.

F TD-1040 Screw Pitch Gauge.

Blue-Point TAPS AND DIES

National Fine Sizes				National Coarse Sizes				Machine Screw Sizes			
Thread Size	TAPS		DIES	Thread Size	TAPS		DIES	Thread Size	TAPS		DIES
	Stock No.	Stock No.			Stock No.	Stock No.			Stock No.	Stock No.	
$\frac{1}{4}$ " -28	T-105	D-015	1" Hexagon	$\frac{1}{4}$ " -20	T-100	D-010	1" Hexagon	4-36	T-111	D-021	$\frac{5}{8}$ " Hexagon
$\frac{5}{16}$ " -24	T-106	D-016	1" Hexagon	$\frac{5}{16}$ " -18	T-101	D-011	1" Hexagon	6-32	T-112	D-022	$\frac{3}{4}$ " Hexagon
$\frac{3}{8}$ " -24	T-107	D-017	1" Hexagon	$\frac{3}{8}$ " -16	T-102	D-012	1" Hexagon	8-32	T-113	D-023	$\frac{7}{8}$ " Hexagon
$\frac{7}{16}$ " -20	T-108	D-018	1" Hexagon	$\frac{7}{16}$ " -14	T-103	D-013	1" Hexagon	10-24	T-114	D-024	$\frac{1}{2}$ " Hexagon
$\frac{1}{2}$ " -20	T-109	D-019	1" Hexagon	$\frac{1}{2}$ " -13	T-104	D-014	1" Hexagon	10-32	T-115	D-025	$\frac{5}{8}$ " Hexagon
$\frac{1}{2}$ " -20	.....	▲DR-019	1½" Round	$\frac{1}{2}$ " -13	.....	▲DR-014	1½" Round	12-24	T-116	D-026	$\frac{3}{4}$ " Hexagon
$\frac{5}{16}$ " -18	T-125	▲DR-035	1½" Round	$\frac{5}{16}$ " -12	T-120	▲DR-030	1½" Round	Pipe Sizes			
$\frac{3}{8}$ " -18	T-126	▲DR-036	1½" Round	$\frac{3}{8}$ " -11	T-121	▲DR-031	1½" Round	$\frac{1}{8}$ "	T-110	D-020	1" Hexagon
$\frac{3}{4}$ " -16	T-127	▲DR-037	1½" Round	$\frac{3}{4}$ " -10	T-122	▲DR-032	1½" Round	$\frac{1}{4}$ "	T-130	D-040	1" Hexagon
$\frac{7}{8}$ " -14	T-128	▲DR-042	2" Round	$\frac{7}{8}$ " -9	T-123	▲DR-040	2" Round	$\frac{1}{2}$ "		DR-033	1½" Round
1" -14	T-129	▲DR-043	2" Round	1" -8	T-124	▲DR-041	2" Round				

RESTORE BATTERED AND DAMAGED THREADS LIKE NEW



UNIVERSAL RETHREADING TOOLS

A TR-20B External Rethreading Set. Here is a rethreading set that will handle practically all rethreading work you'll run across and quickly restore it to original condition.

The tool has a capacity of $\frac{1}{2}$ " to $5\frac{3}{4}$ " diameter for bolt threads and $\frac{1}{4}$ " to $4\frac{1}{2}$ " for pipe threads. Eight chasers with two sizes each are included with the TR-20A to recut threads from 4 to 24 pitch. The TR-20-19 chaser is available as an additional unit. Chasers are machined from high quality tool steel and are carefully heat treated to assure long wearing cutting edges. A metal ring holds the chasers.

The chaser holding bracket of the tool is so designed that threads can be recut right up to a beveled edge or square shoulder. The adjustable jaw has a liner of soft brass to protect the threads from further damage while being recut. This liner is subject to hard wear but it can be easily replaced.

TR-20-5 Soft Brass Liner

Chasers — Stock No. and Thread Pitch

TR-20-10 4 & 5	TR-20-14 $11\frac{1}{2}$ & 12
TR-20-11 6 & 7	TR-20-15 13 & 14
TR-20-12 8 & 9	TR-20-16 16 & 18
TR-20-13 10 & 11	TR-20-17 20 & 24
TR-20-19 $4\frac{1}{2}$ & $7\frac{1}{2}$ threads. The $7\frac{1}{2}$ side is for fire hose fittings. Not included with the TR-20B or TR-25A sets.	

B INTERNAL THREAD CHASER HOLDER

An especially handy tool for restoring internal threads and a companion to the TR-20 set listed above. This internal thread restorer makes use of the same eight chasers TR-20-10 to -17 listed above. Unit is made of steel with a knurled handle for firm grip as shown. Chaser is held by threaded screw in end of stem. Plated and smoothly finished.

B TR-25-1 Internal Thread Chaser Holder.

TR-25A Internal Thread Chaser Set. Consists of TR-25-1 Internal thread chaser holder, and thread chasers (listed above), TR-20-10, 11, 12, 13, 14, 15, 16 and 17.

THREAD RESTORERS

C A few strokes across battered threads produce a true new thread—nut then goes on easily. Each tool has 8 thread sizes. TF-1124 Has 11, 12, 13, 14, 16, 18, 20, and 24 threads to the inch. TF-1127 Has 9, 10, 15, 16, 20, 26, 28, and 32 threads to the inch.

AXLE RETHREADING TOOL

D AR-6A Axle Rethreader. Here is a tool that does a fast job of restoring battered axle threads. Though very compact it contains the six most popular axle thread sizes in use. Tool is placed around the axle where the thread is still in good condition. The end clamp holds the two pieces securely in place while the tool is worked over the damaged part to restore it to its original condition. Contains the following sizes: $\frac{5}{8}$ "-18, $\frac{3}{4}$ "-16, $\frac{7}{8}$ "-14, 1"-14, $1\frac{1}{8}$ "-12 and $1\frac{1}{4}$ "-12.

LEFT HAND STUD RETHREADER SET

E TRL-3 Stud Rethreader Set. Renew threads on left-hand wheel studs quickly with this set. Turn the dies with any type wrench. TRL-4320 Die. $\frac{7}{16}$ "-20 N.F., $\frac{1}{16}$ " hex. TRL-5020 Die. $\frac{1}{2}$ "-20 N.F., $\frac{3}{4}$ " hex. TRL-5618 Die. $\frac{9}{16}$ "-20 N.F., $\frac{7}{8}$ " hex.

INVERTED FITTING CHASER SET

F TDC-3 Chaser Set. Designed to retap and rethread tube fittings of the inverted flared type. By restoring damaged threads in these units you can save yourself the time required to remove the old fitting, replacing with a new one and then refiring the tube. The three sizes below fit most hydraulic brake lines as well as some gas and oil lines in use on present day cars. Set contains 3 sizes as listed:

TDC-1224	$\frac{3}{8}$ "-24 Chaser
TDC-1424	$\frac{7}{16}$ "-24 Chaser
TDC-1620	$\frac{1}{2}$ "-20 Chaser

RETHREADER TAP SETS

Renew tapped threads fast after removing broken studs from engine block, transmission and transmission case, etc. Clean threads on corroded nuts on U-bolts, bumpers, etc. Use any type wrench on the hex end to turn the tap. Use oil when rethreading—Do Not use on hardened threads. Sizes are marked on the plastic containers and the taps.

TRT-6F National Fine Set. Black finish. The six sizes listed below.

TRT-6C National Coarse Set. Copper finish. The six sizes listed below.

G TRT-6F Set	H TRT-6C Set
TRT-2528 $\frac{1}{4}$ "-28 NF	TRT-2520 $\frac{1}{4}$ "-20 NC
TRT-3124 $\frac{5}{16}$ "-24 NF	TRT-3118 $\frac{5}{16}$ "-18 NC
TRT-3724 $\frac{3}{8}$ "-24 NF	TRT-3716 $\frac{3}{8}$ "-16 NC
TRT-4320 $\frac{7}{16}$ "-20 NF	TRT-4314 $\frac{7}{16}$ "-14 NC
TRT-5020 $\frac{1}{2}$ "-20 NF	TRT-5013 $\frac{1}{2}$ "-13 NC
TRT-5618 $\frac{9}{16}$ "-18 NF	TRT-5612 $\frac{9}{16}$ "-12 NC

SPARK PLUG TAP SET

J Quickly repairs damaged threads in aluminum heads. If the threads are badly stripped it may be necessary to re bore the hole with the counterboring tool and re-thread for the next size spark plug. The MCB-3 Counterbore will ream a 10 mm. hole to a 14 mm., a 14 mm. to 18 mm., and an 18 mm. to a $\frac{1}{8}$ ". The counterbore may be turned with a wrench or electric drill.

TDM-13 Spark Plug Set. Four Spark Plug Taps and Counterbore tool in TDM-11-1 fitted wood case as illustrated.

MCB-3 Counterbore.	
T-10100	10mm. x 1.00 Tap
T-14125	14mm. x 1.25 Tap
T-18150	18mm. x 1.50 Tap
T-2818	$\frac{7}{8}$ " x 18 N.F. Tap
TDM-11-1 Fitted Wood Case only.	

K RETHREADING DIE SETS

You can remove nicks and burrs and have clean, properly fitting studs and cap screws in just a few seconds time. The fine thread series have natural finish and the coarse thread series a copper finish. These dies are built for chasing work only and not for cutting new threads.

TRC-7A Rethreader Kit. Consists of the seven National Coarse sizes listed below.

TR-2520	Chaser $\frac{1}{4}$ " x 20 thread
TR-3118	Chaser $\frac{5}{16}$ " x 18 thread
TR-3716	Chaser $\frac{3}{8}$ " x 16 thread
TR-4314	Chaser $\frac{7}{16}$ " x 14 thread
TR-5013	Chaser $\frac{1}{2}$ " x 13 thread
TR-5612	Chaser $\frac{9}{16}$ " x 12 thread
TR-6211	Chaser $\frac{5}{8}$ " x 11 thread

TRF-7A Rethreader Kit. Contains the seven National Fine sizes listed below.

TR-2528	Chaser $\frac{1}{4}$ " x 28 thread
TR-3124	Chaser $\frac{5}{16}$ " x 24 thread
TR-3724	Chaser $\frac{3}{8}$ " x 24 thread
TR-4320	Chaser $\frac{7}{16}$ " x 20 thread
TR-5020	Chaser $\frac{1}{2}$ " x 20 thread
TR-5618	Chaser $\frac{9}{16}$ " x 18 thread
TR-6218	Chaser $\frac{5}{8}$ " x 18 thread

L RETHREADING DIE SETS FOR LARGER SIZE BOLTS

Similar to the Nos. TRC-7A and TRF-7A above. Flexible, ball link chain keeps dies together to prevent loss.

TRC-5 National Coarse Rethreader Set. Copper finish. The five sizes listed below:

TR-7510	Chaser $\frac{3}{4}$ " x 10 thread
TR-8759	Chaser $\frac{7}{8}$ " x 9 thread
TR-10008	Chaser $1\frac{1}{8}$ " x 8 thread
TR-11257	Chaser $1\frac{1}{4}$ " x 7 thread
TR-12507	Chaser $1\frac{1}{2}$ " x 7 thread

TRF-5 National Fine Rethreader Set. Natural finish. The five sizes listed below:

TR-7516	Chaser $\frac{3}{4}$ " x 16 thread
TR-8714	Chaser $\frac{7}{8}$ " x 14 thread
TR-10014	Chaser $1\frac{1}{8}$ " x 14 thread
TR-11212	Chaser $1\frac{1}{4}$ " x 12 thread
TR-12512	Chaser $1\frac{1}{2}$ " x 12 thread

THREAD CHASER DIE FOR G.M. CARS
TR-7520 $\frac{3}{4}$ "-20 Thread Chaser. Specifically designed for use on front spindles of G.M. cars. Hex shape can be turned with a wrench. Not illustrated.

SPARK PLUG HOLE RECONDITIONERS

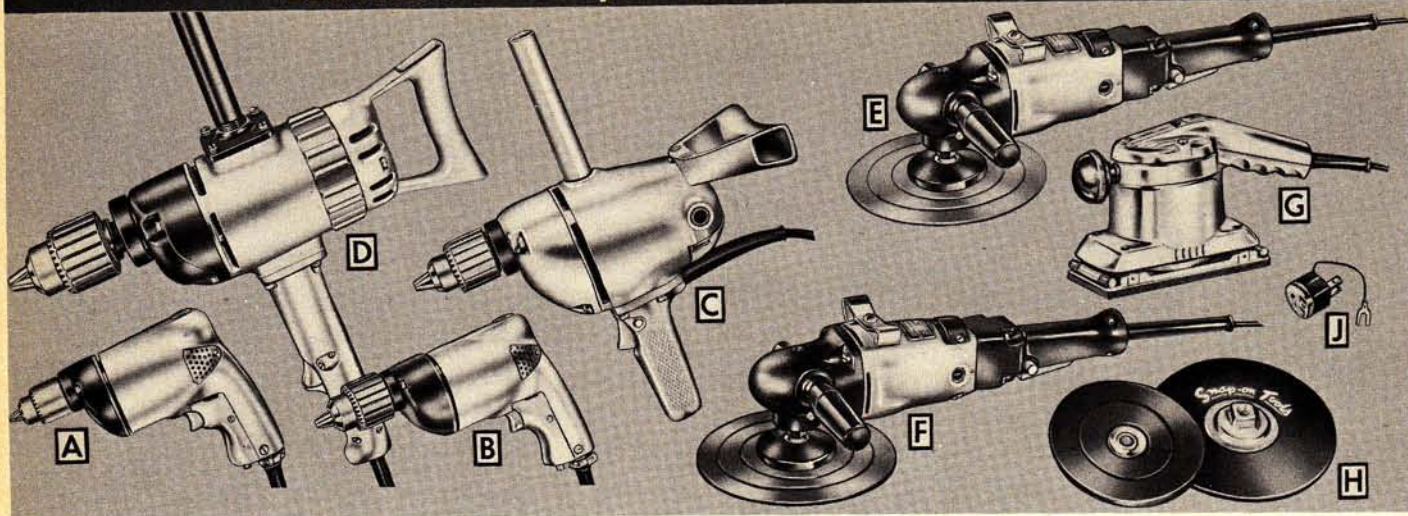
Clean both the spark plug hole threads and the spark plug seat in one quick operation. Have threaded portion on one end, a $\frac{1}{16}$ " hex shape on opposite end and have a spring loaded, serrated section at top of threaded section. A heavy spring keeps tension on this serrated section and insures thorough cleaning job on spark plug seat as tool is threaded into the hole. Three equally spaced grooves in threaded section loosen and collect dirt and chips. The friction ball in hex end secures tool to socket.

TCS-14 Spark Plug Hole Reconditioner for 14MM holes encountered on GM, Chrysler products and others. Length $2\frac{1}{16}$ ".

TCS-18 Spark Plug Hole Reconditioner for 18MM holes encountered on Ford family line products and others. Length $2\frac{5}{8}$ ".

M TCS-1418 Spark Plug Hole Reconditioner Set contains one of each of the above packed in plastic box with sleeve type cover, instructions included.

ELECTRIC DRILLS, SANDERS AND POLISHER



Blue-Point HEAVY DUTY ELECTRIC DRILLS

A 1/4" CHUCK MODEL

EDB-25 1/4" Electric Drill. Continuous Heavy Duty Rating. High quality pistol grip drill, ruggedly constructed throughout to deliver smooth power and long satisfactory performance in everyday use. Special alloy heat treated gears, extra long-life brushes and five ball and one needle bearings make this drill more than equal to the toughest jobs. Has trigger switch in pistol-grip handle that locks for "on" position.

B 3/8" CHUCK MODEL

EDB-38 3/8" Electric Drill. Pistol Grip drill designed to give you the ultimate in performance. Rated for continuous heavy duty use. This drill offers heavy duty construction throughout, smooth running special heat treated gears, five ball bearings and one needle bearing, extra long-life brushes and precision geared chuck. Here is quality with power to spare. Aluminum housing is strong yet lightweight and is easily cleaned.

C 1/2" CHUCK MODEL

EDB-50 1/2" Electric Drill. This automotive drill offers close-coupled construction with minimum spindle offset plus precision chuck for operating ease and accuracy; ball bearing mounted armature and chuck spindle. Has a total of three ball and 5 needle bearings. Special motor windings provide high overload protection. Built for continuous, heavy duty service. Packed with power to handle those tough drilling jobs.

D 3/4" CHUCK MODEL

EDB-75 3/4" Electric Drill. This drill has extra heavy duty construction that delivers top performance for all drilling operations, as well as for running speed reducers, hoists and light elevators. Heavy duty ball bearings at spindle and armature shaft with a total of 6 ball and 2 needle bearings provide exceptionally smooth operation. This 3/4" model has a reversing switch and a tapered shank and tapered chuck.

EQUIPMENT AND COMPARATIVE SPECIFICATIONS

Motors: 115V DC or AC up to 60 cycles.

Drill Model No.	Chuck Thread	Amps at 115V	Cap. in steel inches	Cap. in Wood inches	Std. speed no load r.p.m.	Rated load speed r.p.m.	Overall Length Inches	Net Weight Lbs.
EDB-25	1/4"-24	3	1/4"	1/2"	1700	1300	7 3/4"	3 3/4
EDB-38	3/8"-24	3	3/8"	1"	1000	650	8 3/4"	3 3/4
EDB-50	1/2"-20	5.5	1/2"	1 1/4"	450	300	13 1/2"	9 3/4
EDB-75	Tapered	10	1 1/16"	2"	375	275	17 1/2"	17 3/4

▲ CHUCKS AND CHUCK KEYS

Chucks are complete with key and rubber key holder.

Chuck No.	Capacity	Thread Size	Key & Holder No.	Chuck No.	Capacity	Thread Size	Key & Holder No.
SC-1A	0-1/4"	1/8"-24	SCK-1	SC-5B	3/4"-1/2"	1/2"-20	SCK-5
SC-4A	0-1/4"	1/8"-24	SCK-4	SC-5D	3/4"-1/2"	1/2"-16	SCK-5
SC-4B	0-1/4"	1/2"-20	SCK-4	SC-6D	0-1/2"	1/2"-16	SCK-6
SC-2A	0-1/4"	1/8"-24	SCK-2	SC-6F	0-1/2"	1/2"-16	SCK-6
SC-3B	0-3/8"	1/2"-20	SCK-5	SC-6F	1/2"-3/4"	1/2"-16	SCK-6
SC-3D	0-3/8"	1/2"-16	SCK-5	SC-9F	3/16"-3/4"	1/4"-16	SCK-9

E HEAVY DUTY ELECTRIC POLISHER

EPB-70 Electric Polisher. An excellent tool for polishing all car finishes—from badly oxidized surfaces to the latest acrylics. Especially useful for waxing cars with either liquid or paste wax, removing "orange peel" spray marks, rubbing out repainted areas, cleaning bodies, bumpers, hub caps and all sections of the car.

Heavy duty construction throughout... has ball and needle bearings, spiral bevel gears, splined shafts and motor designed for correct torque, speed and an even flow of power that contributes to utmost power de-

livery. Side handle can be mounted on either side. Metal stand allows the tool to stand steady when changing disks or bonnets, etc.

Specifications: Capacity, 7" diameter pad. Speed 1220 to 1630 r.p.m. is good for compounding and polishing. Motor 115 V. 60 Cy. AC-DC Amp. rating 6.5 at 115 V. Spindle 5/8"-11. Overall length 15 3/4". Net weight 10 3/4 lbs.

EPB-72. 220 volt model, available on special order only.

F HEAVY DUTY ELECTRIC DISK SANDER

ESB-70 Heavy Duty Electric Disk Sander. A powerful sander designed for heavy duty automotive use such as sanding and blending lead and plastic body fillers, removing paint, grinding and smoothing weld beads, sanding down "bump" marks, grinding off rivets and bolts, delicate feather edging, removing rust and scale and wire brushing. Accessories furnished include the ESP-705 Phenolic Disk Assembly which consists of separate 5", 7" and 9" Phenolic Disks, three 1/2" Rubber Backing Pad and Clamp Washer. This permits using a 9" sanding disk and cutting it down to 7" and 5" as it wears.

A convenient spindle lock simplifies locking or unlocking the backing pads. Powerful centrifugal fan maintains cool operating temperature.

Specifications: No load speed 4250 r.p.m., rated load speed 3100 r.p.m. Motor, 115 V. single phase 25 to 60 cycle AC-DC. Amp rating 8.5 at 115 V. Rated watts 530, maximum watts 830. Switch—instant release. Length without pads 17 3/4". Spindle thread 5/8"-11.

ESB-72. 220 volt model, available on special order.

ESP-705. Phenolic Disc Assembly only.

G OSCILLATING SANDER

ESP-20 Oscillating Sander. Sands, featheredges and polishes. Shaded pole motor requires no commutator or brushes and works only on 115 volt 60 cycle A.C. It has prelubricated sealed ball bearings. Pad resists kerosene, water soluble oils, water, etc. Unit uses one-third of 9" x 11" abrasive sheet... sanding surface is 7 1/4" x 3 3/8" and oscillates 3450 orbits per minute. Has 10' of 3-wire cord, 9 abrasive sheets and wool bonnet.

H REINFORCED GRINDING DISKS

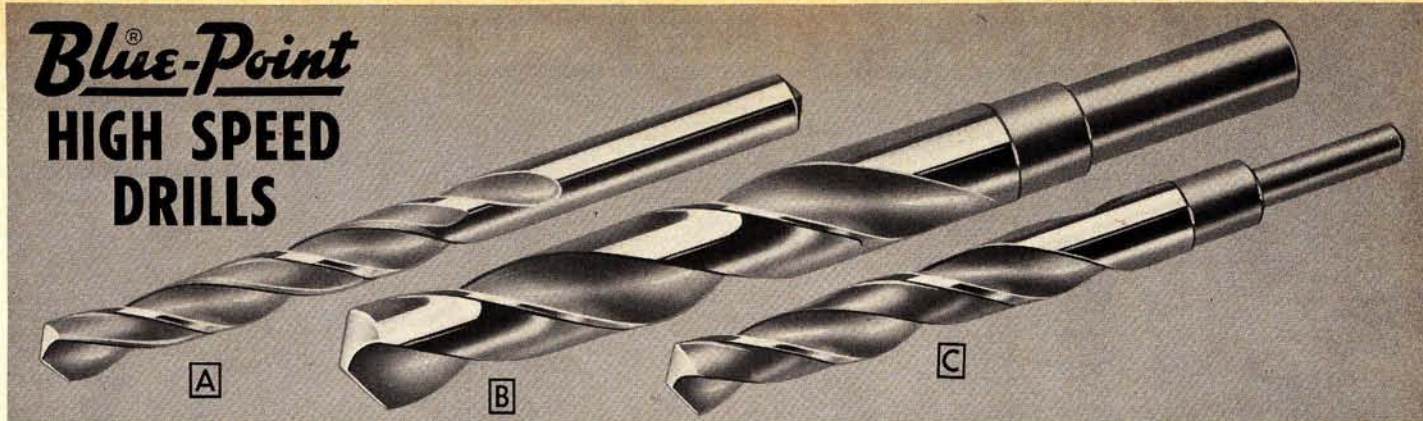
Reinforced Disks. Use on electric sanders for grinding welds, etc. They are lighter and less likely to break than cup-type wheels, however the use of a wheel guard is recommended. Made of several layers of material and grit bonded together. These disks are non-flexible.

Stock No.	Description	Thick	Arbor
RDH-7247A	7" Dia.	3/16"	5/8"-11
RDH-9247A	9" Dia.	3/16"	5/8"-11

I OUTLET ADAPTOR

EC-3, 3-Prong Plug Adaptor. Plugs into 2-prong outlet—has ground wire.

Blue-Point HIGH SPEED DRILLS



These fine quality drills are general purpose drills made to do the best all around job in all classes of work. They are made of fine quality high speed steel and are expertly hardened and tempered by special processes to retain their sharpness for a long period of time. Each is precision ground to cut easily and accurately. For use in electric drills and power driven drill presses. To facilitate their safekeeping we offer sets in metal holders marked so you can quickly select the size drill you need.

A FRACTIONAL DRILLS

No. & Diam.	Decl. Equiv.	L'gth	No. & Diam.	Decl. Equiv.	L'gth
DBF-1/16	.0625	1 7/8	DBF-19/64	.2969	4 3/8
DBF-5/64	.0781	2	DBF-5/16	.3125	4 1/2
DBF-3/32	.0937	2 1/4	DBF-21/64	.3281	4 3/4
DBF-7/64	.1094	2 5/8	DBF-11/32	.3437	4 3/4
DBF-1/8	.1250	2 3/4	DBF-23/64	.3594	4 3/4
DBF-9/64	.1406	2 7/8	DBF-3/8	.3750	5
DBF-5/32	.1562	3 1/8	DBF-25/64	.3906	5 1/8
DBF-11/64	.1719	3 1/4	DBF-13/32	.4062	5 1/4
DBF-3/16	.1875	3 1/2	DBF-27/64	.4219	5 1/2
DBF-13/64	.2031	3 3/8	DBF-7/16	.4375	5 1/2
DBF-7/32	.2187	3 3/4	DBF-29/64	.4531	5 3/4
DBF-15/64	.2344	3 7/8	DBF-15/32	.4687	5 3/4
DBF-1/4	.2500	4	DBF-31/64	.4844	5 3/4
DBF-17/64	.2656	4 1/8	DBF-1/2	.5000	6
DBF-9/32	.2812	4 1/4			

All figures in these tables are in inches

A WIRE GAUGE DRILLS

No.	Decl. Equiv.	L'gth	No.	Decl. Equiv.	L'gth	No.	Decl. Equiv.	L'gth
DBE-1	.2280	3 3/4	DBE-28	.1405	2 7/8	DBE-55	.0520	1 7/8
DBE-2	.2210	3 3/4	DBE-29	.1360	2 7/8	DBE-56	.0465	1 3/4
DBE-3	.2130	3 3/4	DBE-30	.1285	2 3/4	DBE-57	.0430	1 3/4
DBE-4	.2090	3 3/4	DBE-31	.1200	2 3/4	DBE-58	.0420	1 3/8
DBE-5	.2055	3 3/4	DBE-32	.1160	2 3/4	DBE-59	.0410	1 3/8
DBE-6	.2040	3 3/4	DBE-33	.1130	2 3/4	DBE-60	.0400	1 3/8
DBE-7	.2010	3 3/4	DBE-34	.1110	2 5/8	DBE-61	.0390	1 3/8
DBE-8	.1990	3 3/4	DBE-35	.1100	2 5/8	DBE-62	.0380	1 1/2
DBE-9	.1960	3 3/4	DBE-36	.1065	2 1/2	DBE-63	.0370	1 1/2
DBE-10	.1935	3 3/4	DBE-37	.1040	2 1/2	DBE-64	.0360	1 1/2
DBE-11	.1910	3 1/2	DBE-38	.1015	2 1/2	DBE-65	.0350	1 1/2
DBE-12	.1890	3 1/2	DBE-39	.0995	2 3/8	DBE-66	.0330	1 3/8
DBE-13	.1850	3 1/2	DBE-40	.0980	2 3/8	DBE-67	.0320	1 3/8
DBE-14	.1820	3 3/8	DBE-41	.0960	2 3/8	DBE-68	.0310	1 3/8
DBE-15	.1800	3 3/8	DBE-42	.0935	2 1/4	DBE-69	.0292	1 3/8
DBE-16	.1770	3 3/8	DBE-43	.0890	2 1/4	DBE-70	.0280	1 1/4
DBE-17	.1730	3 3/8	DBE-44	.0860	2 1/8	DBE-71	.0260	1 1/4
DBE-18	.1695	3 1/4	DBE-45	.0820	2 1/8	DBE-72	.0250	1 1/8
DBE-19	.1660	3 1/4	DBE-46	.0810	2 1/8	DBE-73	.0240	1 1/8
DBE-20	.1610	3 1/4	DBE-47	.0785	2	DBE-74	.0225	1
DBE-21	.1590	3 1/4	DBE-48	.0760	2	DBE-75	.0210	1
DBE-22	.1570	3 1/4	DBE-49	.0730	2	DBE-76	.0200	7/8
DBE-23	.1540	3 1/4	DBE-50	.0700	2	DBE-77	.0180	7/8
DBE-24	.1520	3 3/8	DBE-51	.0670	2	DBE-78	.0160	7/8
DBE-25	.1495	3	DBE-52	.0635	1 7/8	DBE-79	.0145	3/4
DBE-26	.1470	3	DBE-53	.0595	1 7/8	DBE-80	.0135	3/4
DBE-27	.1440	3	DBE-54	.0550	1 7/8			

COMBINATION SHANK DRILLS

B 1/2" Diameter Shank

Highest quality high speed steel, specially hardened and tempered. Precision ground cutting edges. Drill holes up to 1" diameter with power tools equipped with 1/2" capacity chuck. 4 1/2" flute length provides long drill life. 6" overall length. Individually packed in protective envelopes.

Stock No.	Diam.	Decl. Equiv.
CSE-345	17/32"	.5312
CSE-365	9/16"	.5625
CSE-385	19/32"	.5937
CSE-405	5/8"	.6250
CSE-425	21/32"	.6562
CSE-445	11/16"	.6875
CSE-465	23/32"	.7187
CSE-485	3/4"	.7500
CSE-505	25/32"	.7812
CSE-525	13/16"	.8125
CSE-565	7/8"	.8750
CSE-605	15/16"	.9375
CSE-645	1"	1.0000

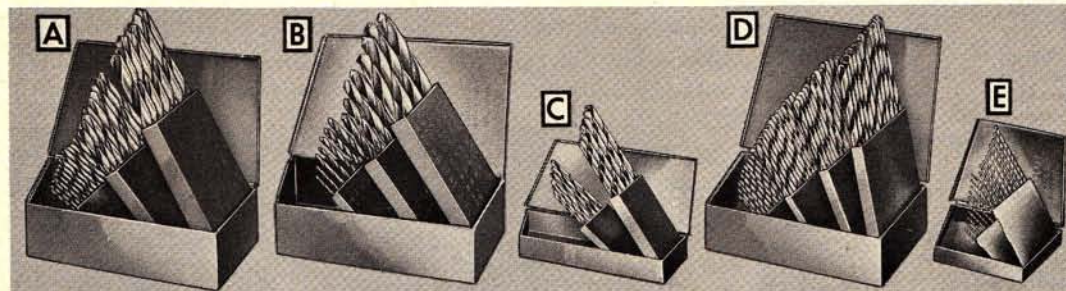


C 1/4" Diameter Shank

Enables you to use your 1/4" electric drill to drill holes up to 1/2" in diameter. Each drill has a stepped down 1/4" diameter shank similar to figure C above. Set of four drills packed in neat plastic bag to protect edges. Individual sizes in protective envelopes.

DB-425 Drill Set. Contains four drills: sizes 5/16", 3/8", 7/16" and 1/2" listed below, in plastic kit bag as shown.

Stock No.	Diam.	Decl. Equiv.
CSE-182	9/32"	.2812
CSE-202	5/16"	.3125
CSE-222	11/32"	.3437
CSE-242	3/8"	.3750
CSE-262	13/32"	.4062
CSE-282	7/16"	.4375
CSE-302	15/32"	.4687
CSE-322	1/2"	.5000



HIGH SPEED DRILL SETS

A DB-129 Fractional Drill Set. 29 Drills 1/16" to 1/2" inclusive in B-129 Holder. Sturdy steel holder has hinged cover. Drill compartments have size of drill stamped into metal.

B DB-115 Fractional Drill Set. 15 drills 1/16" to 1/2" by 32nds, in B-129 Holder. A good basic set—can be filled in later.

B-129 Drill Holder only.

E DB-120 Wire Gauge Drill Set. Consists of 20 tiny wire gauge drills sizes DBE-61 to DBE-80 inclusive. Complete in the H-120 Drill Holder. Holder is only 2" high—gives protection for small drills.

H-120 Drill Holder only.

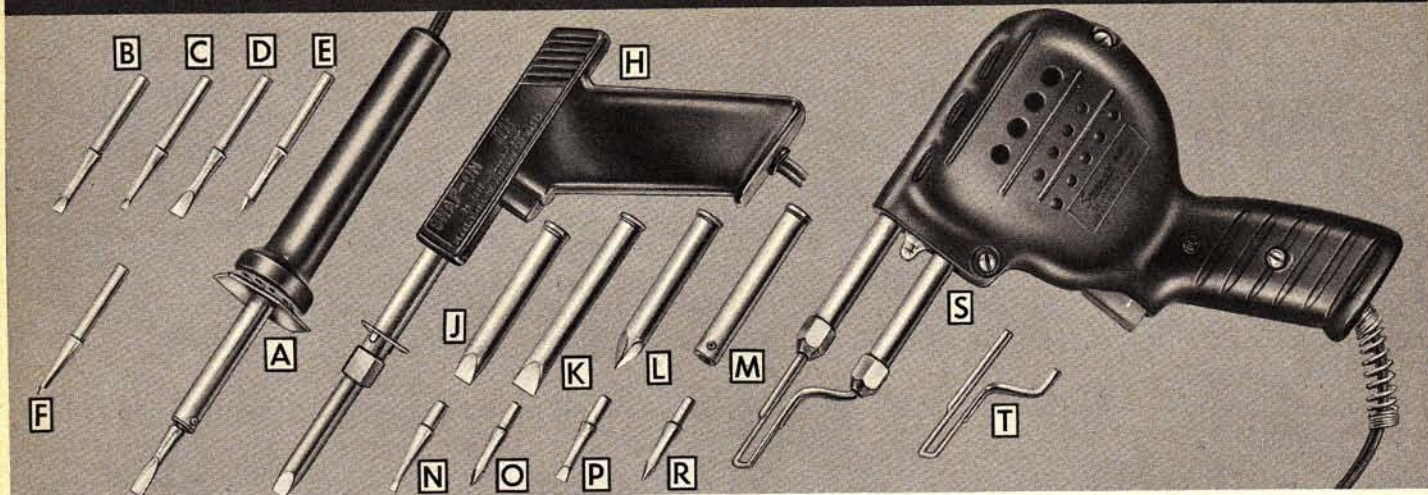
C DB-113 Fractional Drill Set. This set contains 13 drills sizes 1/16" to 1/4" inclusive in B-113 Holder. The drill holder is of steel and is hinged as shown. Each compartment has drill sizes marked on it for easy selection.

B-113 Drill Holder only.

D DB-160 Wire Gauge Drill Set. This set contains 60 Straight Shank Wire Gauge Drills DBE-1 to DBE-60 neatly arranged in B-160 Metal Holder. Each individual drill compartment is marked with drill size for easy selection. Holder has 4 separate hinged containers.

B-160 Drill Holder only.

INDUSTRIAL TYPE ELECTRIC SOLDERING IRONS



IRONS WITH CONTROLLED TEMPERATURES FOR CONTINUOUS USE

These specialized types of soldering irons were engineered for electronics, radio, TV, and similar industries where a variety of soldered connections are made round-the-clock. They provide you with light weight, compact, easy-to-use irons that minimize operator fatigue and maintain a constant tip temperature for continuous operation. Six foot cords have a Coroprex covering impervious to oil, grease, or temperature.

A PENCIL IRON

This feather weight model gets into restricted areas for tiny soldering jobs such as sub-assembly on high speed industrial production work. It operates on 115 volt AC/DC and maintains a constant tip temperature of 850° F. at only 18 watts. Six various small sizes of copper tips provide a range of sizes and styles for every soldering job. Wipe these tips when hot to clean them—do not file them. The barrel and heating element form a one-piece unit with the end open to receive the tip. A slight taper about 1 1/4" from the end of the tip holds it tightly in the barrel yet allows it to be interchanged instantly. A hexagon collar prevents the iron from rolling and keeps the tip off the bench. Black plastic handle is shockproof and stays cool at all times. Overall length is 7 1/2", weight 5 oz.

A R-130 Pencil Iron with R-130-16 1/4" Chisel Tip only.

Additional Tips for Pencil Iron

Chisel Tips	Pyramid Tips
B R-130-12 3/16"	E R-130-13 3/16"
C R-130-14 1/8"	F R-130-15 1/8"
D R-130-16 1/4"	

R-130-5 Set. The R-130 and R-130-12, -13, -14 and -15 tips.

H PISTOL GRIP 2-SPEED IRONS

This iron goes to work fast . . . pressing the button shoots a booster charge of 100 watts within the tip—brings it to soldering heat in 40 seconds. Then, without using the button, 25 watts maintain 500° F tip temperature.

The hermetically sealed dual element is located entirely within the tip—right where you want the heat . . . element wires are non-corroding monel.

A sliding collar on the shaft keeps the hot tip away from the bench surface when laid down . . . yet pushes up the shaft to allow entrance through small openings. Phosphor-bronze switch has pure silver contact points—will not flash or arc.

R-115C Iron 115 Volt AC/DC with R-115A-9 Tapered Chisel Tip only. Weight 10 oz.

Additional Copper Tips for Above Irons

- J R-115A-9 3/8" diameter, Tapered Chisel Tip**
- K R-115A-10 3/8" diameter, Full Chisel Tip**
- L R-115A-11 3/8" diameter, Pyramid Tip**
- M R-115-16 Holder, for the following tips:**
- N R-115-16-1 3/16" diameter, Chisel Tip**
- O R-115-16-2 3/16" diameter, Pyramid Tip**
- P R-115-16-3 1/8" diameter, Chisel Tip**
- R R-115-16-4 1/8" diameter, Pyramid Tip**

Snap-on INSTANT HEAT SOLDERING GUN

● **Faster Heat.** This heavy duty transformer type SNAP-ON soldering gun heats to solder melting temperature in only three seconds after you press the trigger . . . You eliminate waiting time and get the job done faster and more efficiently. Tip cools very rapidly when trigger is released and the switch cannot be locked in heating position.

● **Dependable Heat.** Every unit of the SNAP-ON Soldering Gun is engineered and built to give you long reliable service.

● **Replaceable Tips.** Special duty "Feraloy" plated tip withstands long use without bending or breaking and it will fit into tiny corners. Tip remains tinned indefinitely. Two hex nuts hold tip tightly in the split chucks . . . You get full wattage at the tip without arcing or burning at the contact areas.

● **Bright spotlight** is mounted in the housing and lights when trigger is pulled. Provides plenty of lighting on the job . . . no need to use extension lights.

● **Plastic Housing.** Side gridwork provides ventilation to the transformer. The large pistol grip handle is well rounded for a comfortable fit to the hand and the fine balance of the gun helps cut working fatigue.

● **Heavy Duty Cord.** Cord is 6 foot long and is fitted with a metal strain reliever that prevents kinking or breaking at that point.

S R-250 Instant Heat Soldering Gun. For 115 volt A.C. current only.

R-250-5 Replacement Bulb.

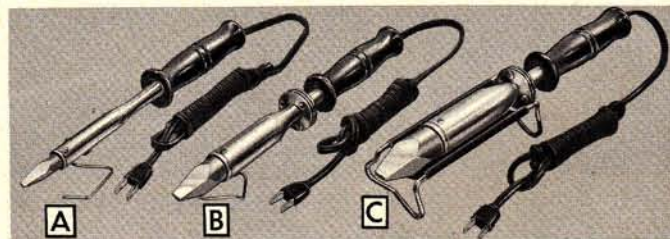
T R-250-20 Replacement "Feraloy" Tip.

ANTI-FREEZE TESTER

GA-300 Anti-Freeze Tester. This sturdy, well built unit will test all types of anti-freeze solutions within a solution temperature range of 60 degrees to 180 degrees. Depending upon the strength of the solution, the unit will indicate a protection range for Methanol solution from plus 26 degrees down to minus 60 degrees . . . for Alcohol solutions from plus 29 degrees down to minus 43 degrees . . . for Ethylene Glycol solutions from plus 32 degrees down to minus 59 degrees.

An easy-to-read thermometer has clearly marked graduations from 60 to 180 degrees. This thermometer and the conversion charts are hermetically sealed against moisture in the lower part of the unit. Solution is drawn into the tester and the float letter at top of liquid noted. Position the transparent collar with its centerline even with the top of thermometer liquid column. Read Freezing Point where the centerline crosses the float letter column for the type of Anti-Freeze used.

The bulb and base are high-grade rubber and can be removed for cleaning. The hose is approximately 16" long and can be removed from the base. A hanger hole is provided in the bulb and a suction hose retainer in the base. Glass component is fully annealed for durability and long service life.



HIGH HEAT SOLDERING IRONS

A R-90 Soldering Iron. 1/2" Screw Tip. Excellent for light duty jobs which require a small amount of soldering. Use with 110-120 volt AC/DC. Rating is 90 watts, 12 1/2" long. Has a wire stand.

R-90-220V. 220 volt model. Special order only.

R-90-1. Extra 1/2" tip for above irons.

B R-150 Soldering Iron. 3/8" Screw Tip. A 170 watt rated unit of medium size. It holds heat well and handles a wide range of work. Length is 13 1/2" and it has a wire stand.

R-150-220V. 220 volt model. Special order only.

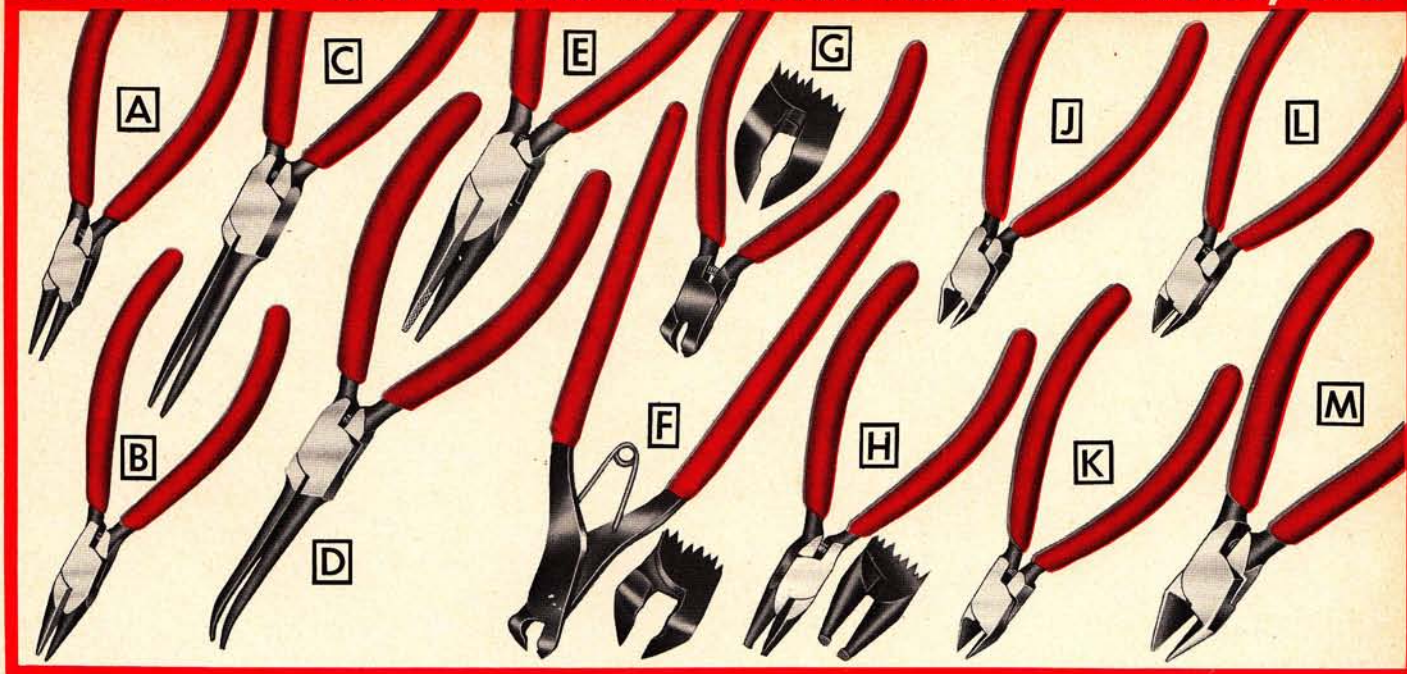
R-150-1. Extra 3/8" tip for above irons.

C R-300 Soldering Iron. 1 1/8" Screw Tip. Rated at 300 watts for continuous duty industrial and garage work. A heavy duty iron for any soldering job. 14 1/2" long—platform stand provided.

R-300-220V. 220 volt model. Special order only.

R-300-1. Extra 1 1/8" tip for above irons.

PLIERS AND CUTTERS FOR ELECTRONIC ASSEMBLY WORK, ETC.



The pliers on this page are specially designed for electronic assembly and service work. All are made of special alloy steel and are selectively heat treated for maximum strength and jaw hardness. Precise machining and carefully controlled riveting assure easy, wobble-free action, retention of jaw alignment and accurate mating of needle nose tips and cutter blades. All have baked-on plastic coating on handles.

Thin, tapered cutter jaws have a small hole at the base of the blades to relieve pressure on the cutting edges and permit cutting with the top $\frac{1}{16}$ " of the blades. Do **NOT** use this hole as a wire stripper. The Plier is returned to open position by means of a coil spring . . . except E-706B which has a strong wire spring.

NOTE: Flush cut models have extremely thin cutting edges and should only be used when a true flush cut is essential.

These Small Pliers and Cutters Speed Assembly Operations

A E-700 Wire Looper Plier. Round, non-serrated jaws taper from $\frac{1}{32}$ " to $\frac{1}{64}$ " tip diameter.

B E-708 Needle Nose Plier. Jaws are $\frac{7}{8}$ " long with no serrations.

B E-713 Needle Nose Plier. Jaws are $\frac{7}{8}$ " long, with serrated tips.

C E-701 Needle Nose Plier. Extra slim, non-serrated $2\frac{1}{16}$ " jaws are tapered to $\frac{1}{16}$ " tip width.

C E-703 Needle Nose Plier. Same as E-701 Plier above but with serrated tips.

E-715 Needle Nose Plier. Not shown. Similar to E-701 but with $1\frac{1}{4}$ " jaw length and serrated tips.

D E-702 Bent Needle Nose Plier. Extra slim, non-serrated $2\frac{1}{4}$ " jaws tapered to $\frac{1}{16}$ " tip width. Nose of jaws bent at 45° angle.

D E-704 Bent Needle Nose Plier. Same as E-702 Plier above but jaw tips serrated.

E E-712 Needle Nose Plier. Jaws are $1\frac{1}{16}$ " long with serrated nose.

E-716 Needle Nose Plier. Same as E-712 Plier above but without serrations.

F E-706B End Flush Cutter Nipper. $6\frac{1}{8}$ " length and straight handles aid in reaching past obstructions; $\frac{3}{16}$ " cutter length.

G E-714 End Flush Cutter Plier. Cutter jaws are set at 80° to the handles, cutter length is $\frac{3}{16}$ ".

H E-705 End Flush Cutter Plier. $\frac{3}{4}$ " long jaws taper to provide a $\frac{3}{32}$ " wide end cutter.

J E-707 Flat Flush Cutting Plier. Bottom of blades are flat and tops are ground to a very small depth.

Caution: Use only where true-flush cuts are essential in very tight places and avoid damage to the cutter.

K E-709 Flush Diagonal Cutter Plier. Has cutting blades $\frac{3}{8}$ " long. **Caution:** Use only where true-flush cuts are essential.

L E-711 Semi-Flush Diagonal Cutter Plier. Has cutting blades $\frac{3}{8}$ " long. Similar to E-709 Plier above, but has a stronger blade edge.

M E-710 Flush Diagonal Cutter Plier. Larger and stronger than other cutters listed above. Cutter blades are $\frac{3}{4}$ " long.

Electronic Plier and Cutter Specifications

Plier Stock No.	Flush Cut Length	Semi-Flush Cut Length	End Flush Cut Length	Cutter Jaw Length	Needle Nose Jaw Length	Serrated Jaw Tips	Jaw Opening Spring	Plastic Covered Handles	Overall Plier Length
A E-700	—	—	—	—	$\frac{3}{4}$ "	No	Yes	Yes	$4\frac{19}{32}$ "
B E-708	—	—	—	—	$\frac{7}{8}$ "	No	Yes	Yes	$4\frac{17}{32}$ "
B E-713	—	—	—	—	$\frac{7}{8}$ "	Yes	Yes	Yes	$4\frac{17}{32}$ "
C E-701	—	—	—	—	$2\frac{1}{8}$ "	No	Yes	Yes	$6\frac{1}{2}$ "
C E-703	—	—	—	—	$2\frac{1}{8}$ "	Yes	Yes	Yes	$6\frac{1}{2}$ "
E-715	—	—	—	—	$1\frac{1}{4}$ "	Yes	Yes	Yes	$5\frac{1}{16}$ "
D E-702	—	—	—	—	$2\frac{1}{8}$ "	No	Yes	Yes	$6\frac{19}{32}$ "
D E-704	—	—	—	—	$2\frac{1}{8}$ "	Yes	Yes	Yes	$6\frac{19}{32}$ "
E E-712	—	—	—	—	$1\frac{3}{4}$ "	Yes	Yes	Yes	6"
E-716	—	—	—	—	$1\frac{3}{4}$ "	No	Yes	Yes	6"
F E-706B	—	—	$\frac{1}{4}$ "	$\frac{1}{2}$ "	—	—	Yes	Yes	$6\frac{1}{8}$ "
G E-714	—	—	$\frac{3}{16}$ "	$\frac{1}{2}$ "	—	—	Yes	Yes	$4\frac{3}{16}$ "
H E-705	—	—	$\frac{3}{32}$ "	$\frac{3}{4}$ "	—	—	Yes	Yes	$4\frac{1}{2}$ "
J E-707	$\frac{3}{8}$ "	—	—	$\frac{7}{16}$ "	—	—	Yes	Yes	$4\frac{1}{4}$ "
K E-709	$\frac{3}{8}$ "	—	—	$\frac{7}{16}$ "	—	—	Yes	Yes	$4\frac{1}{4}$ "
L E-711	—	$\frac{3}{8}$ "	—	$\frac{7}{16}$ "	—	—	Yes	Yes	$4\frac{1}{4}$ "
M E-710	$\frac{3}{8}$ "	—	—	$1\frac{1}{32}$ "	—	—	Yes	Yes	$5\frac{1}{16}$ "

Snap-on GRIPPING AND COMBINATION PLIERS



GRIPPING PLIER FEATURES

Flat end permits plier to snub against objects where rounded nose pliers would fail.

End gripping sections have parallel teeth or cross-cut teeth, depending on the plier model . . . provide a secure non-slip grip. Curved gripping sections have large, deep broached teeth to grip tightly on pipe and odd shape objects.

Stud positioning hole is broached to give a true bearing surface and a snug, easy working joint which reduces stud wear and chance of slippage. Curved wire cutters in gripping jaws overlap to provide non-slip action.

All SNAP-ON Pliers are hardened clear through—not surface hardened only. Fast repair service is available to give your SNAP-ON Pliers longer service life.

A No. 9C Gripping Plier. The slip joint design has four spacer holes to permit quick non-slip adjustments and provide approximately parallel working positions of the jaws up to 1 1/4" opening.

The long handles give a firm, powerful grip with plenty of leverage to hold onto the object being serviced regardless of its shape, and the long reach is extremely useful on jobs where obstructions prevent entry of your hands.

The jaws are slim . . . only 2 1/4" thick, but are heat treated to exceptional strength and toughness—they will enter narrow places where most pliers of this capacity cannot go. The 45° jaw angle provides easy working action in otherwise inaccessible places. Teeth are milled sharp and deep to take a firm grip on rods, pipes, etc. Entire tool is nickel and chrome plated. 8 3/4" long.

B No. 90A Interlocking Joint Gripping Plier. A raised curved section on one handle interlocks into either of five recessed grooves in the other handle . . . permits fast changes of parallel openings up to 1 1/4". The pressure side of the grooves is perpendicular to prevent "ride-under" or slipping.

The slim 45° angle jaws are 2 1/4" thick for easy entry in tight spots but are heat treated to give unusual gripping strength.

Deep cut teeth set at an angle give a firm grip on round objects, etc. Long handles provide powerful leverage. Tool is nickel and chrome plated and 9 1/4" long.

C No. 91A Plier. Same design as No. 90A above but with ball-blast finish and no pattern on handles. Chrome plated.

D No. 35C Combination Plier. 5" overall length. This plier has the same head design as the larger No. 137, listed at right. The handles are full fashioned with a flat, plain surface. Tool has a natural steel finish. Inside jaw tips have straight serrations.

C No. 137 Heavy Duty Combination Plier. Combines powerful gripping leverage with easy cutting action. The 1 3/32" thick gripping jaws have a flat serrated gripping end section and a curved sharp tooth section for gripping pipe, etc. Slip joint has two positions and the countersunk stud allows cutting close to an object. Handles have raised "Vacuum Grip" cup pattern. Full nickel and chrome plated. 7 1/2" long.

D No. 137C Combination Plier. Same head design as No. 137 above. Handles are flat, full fashioned with no pattern. Tool has a natural steel finish. Inside jaw tips have straight serrations. 7 1/2" long.

F Heavy Duty Gripping Plier. These popular and powerful general use pliers have 2-position slip joints to permit a wide gripping capacity and the jaws provide an end gripping section with sharp, matching, parallel teeth and a curved section with large deep cut teeth for pipe work, etc. At the base of the jaws are wire cutters of curved shape which overlap to prevent wire being forced out as cutting pressure is applied. Handles have raised "Vacuum Grip" pattern. Following five pliers are nickel and chrome plated.

No. 44	..... 1 5/16"	Jaw Thickness	4 1/2" long
No. 45	..... 2 3/16"	Jaw Thickness	5 1/16" long
No. 46	..... 2 3/16"	Jaw Thickness	6 1/16" long
No. 47	..... 1 3/32"	Jaw Thickness	7 1/2" long
No. 49	..... 1 1/2"	Jaw Thickness	9 1/2" long

Following pliers have same design as the above but have natural steel finish heads and handles. No pattern on handles.

No. 44C	..... 1 5/16"	Jaw Thickness	4 1/2" long
No. 45C	..... 2 3/16"	Jaw Thickness	5 1/16" long
No. 46C	..... 2 3/16"	Jaw Thickness	6 1/16" long
No. 47C	..... 1 3/32"	Jaw Thickness	7 1/2" long

PL-70C Set. Consists of seven Pliers.
Nos. 9C, 50C, 47, 35C, 87, 196 and 208B.

G No. 5, 4 1/2" Midget Plier. A useful little pair of pliers that can be used to excellent advantage on all extremely small work, radio, electrical, small bench jobs. Head and handles have full polished finish. Single position riveted joint. No handle pattern.

H No. 50C, 5" Ignition Plier. Very narrow jaws designed to reach in and turn the thin nuts found in distributors, voltage regulators, etc. The slight angle of the head assists when working around obstructions. 2-position slip joint permits a 1 3/32" maximum parallel jaw opening. Natural steel finish on the head and handles. No pattern on handles.

J No. 105, 5" Ignition Plier. Midget Pliers with standard 3-position adjustable slip-joint. It's a dandy for servicing carburetor, ignition, radio, and other small jobs. Nickel and chrome plated. Smooth handles.

K 208B 7 3/4" Angle Nose Battery Plier. Short round nose jaws provide a powerful grip on the terminal nut and prevent damaging top of battery. Valuable for all general gripping purposes. Jaw length 9/16". The thin, tapered nose is offset at a 30° angle for working in awkward spaces. Natural steel finish with partial polish on head and handles. No pattern on handles. Single position riveted joint.

L Lineman Pliers. Powerfully built tools for gripping, twisting, hammering, and cutting. Engineered to give you narrow jaws for easy entry into tight spots yet tough and strong for hard work . . . localized jaw tempering adds wear and breakage resistance. Wire insulation breaker in handles. Cutter heads are machined to give perfectly matched blades and are induction hardened. Smoothly ground natural steel finish. No pattern on handles.

No. 57R 7" Lineman Plier.
No. HD-59 9 1/4" Lineman Plier.

M Insulating Handle Grips. Use any 7" or 8" plier safely on low voltage electrical equipment when fitted with these plastic insulating grips. Easily attached to any shape handle.

PG-7C Pair of Plastic Grips for 7" Pliers
PG-8C Pair of Plastic Grips for 8" Pliers

A WIDE RANGE OF *Snap-on* CUTTING PLIERS



NEEDLE NOSE AND CUTTING PLIER FEATURES

Rivet holes are drilled and reamed to remove burrs and assure easy operation . . . contributes to long plier life.

Star Chamfer — forms the rivet head and gives extra holding power to the rivet to prevent jaw looseness — holds jaws in alignment.

Joint surfaces and edges broached and ground to give smooth operation and snug fit . . . eliminate binding.

Electronically heated rivet is forced evenly and exactly into the surface contour of the chamfered hole . . . This assures a smooth joint operation and longer working life.

Cutting edges on standard type cutters are overlapped to give a shearing action. Cutters last longer because they never meet head-on.

OUR PLIER RECONDITIONING SERVICE SAVES MONEY

SNAP-ON gripping and cutting pliers are precision made to give you the finest tools of their kind. Selected alloy tool steel provides the tough jaws and hard cutting edges professional use requires. The toughest, hardest cutting edges possible are produced by an electronic hardening process. This process heats and cools the metal so quickly that distortion of cutting edges is prevented, consequently, you get perfectly matched cutting blades in every SNAP-ON cutting plier. With proper care these SNAP-ON pliers will give years of satisfactory service. This service life can be extended through our factory repair service. Worn joints, rivets, or dulled cutting edges can be reconditioned to work like new. Costs much less than buying new tools.

DIAGONAL CUTTER PLIERS

A No. 184 4 1/4" Midget Diagonal Cutter. 1 3/32" jaw length. An excellent tool for all those tiny, tricky wire cutting jobs. It is small, but has abundant cutting power. Cutters are hand filed. Tool has full polished head and handles.

B Standard Series Diagonal Cutters. Heads are polished and handles are natural buffed steel finish with raised "Vacuum Grip" pattern. You cannot buy a better cutter anywhere. Heads are induction hardened and cutting edges machined to a perfect match.

No. 85 4 7/8" Diagonal Cutter. 9/16" jaw length.

No. 86 6" Diagonal Cutter. 3/4" jaw length.

C No. 87 7 1/4" Heavy Duty Diagonal Cutter. 1 5/16" jaw. Our finest for those tough cutting jobs, cotter pin work, etc. Long full fashioned handles provide powerful cutting leverage. Long tapered heads and jaws match perfectly, are induction hardened. Head is smoothly polished, handles have raised pattern.

D Industrial Finish Diagonal Cutters. Designed with bow-type handles and no pattern on the handles. Natural steel finish with heads partially polished.

No. 86C 6 1/8" Diagonal Cutter. 3/4" jaw length.

No. 87C 7 1/4" Diagonal Cutter. 1 5/16" jaw length.

AVAILABLE TO LARGE QUANTITY BUYERS ON SPECIAL ORDER:

Plastic Handle Coating. Baked on plastic gives a comfortable hand grip.

Plastic Jaw Inserts. Baked on insert grips cut wire . . . helps prevent cut off pieces causing wiring shorts, etc.

HIGH LEVERAGE DIAGONAL CUTTER

E No. 387 7 1/4" High Leverage Diagonal Cutter. 3/4" jaw length. Sturdy over-capacity jaws handle the toughest cutting jobs. Cutter jaws are hand edged after tool is assembled to insure absolute accuracy in overlapping shear action. Spring tempered handles afford tremendous cutting leverage and comfortable grip. Natural finish with polished head and stamped "Vacuum Grip" pattern on handles.

No. 387C 7 1/4" Diagonal Cutter. Same design as No. 387 above, but with partly polished head and handles. No handle pattern.

TRUE FLUSH PLASTICS CUTTER

F No. 860A True Flush Cutter. For cutting plastics and molded rubber products, etc. It is a true flush cutter with a depth of cut adjustment feature. Hard materials require only a shallow cut since brittle material breaks easily, softer material requires a cut to a greater depth. Use a 1/16" hex head wrench to adjust cutting depth. Cutter blades are 5/16" long. The tool has a black finish with polished steel head surfaces and red plastic handle coating. 6 1/4" long.

END CUTTING PLIER

F No. 17C 7 1/4" End Cutter. 1 5/16" jaw width. Provide maximum cutting leverage. The head design lets you cut extremely close to an object or it can be used with a rolling motion to pull nails or other objects. Head is partially polished, handles have a natural steel finish without any handle pattern.

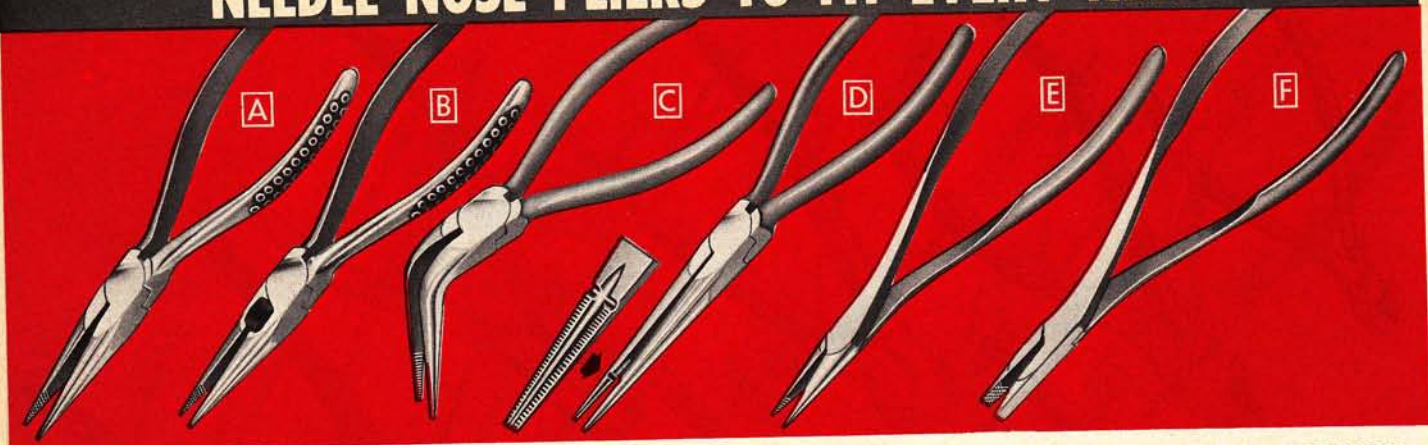
COMPOUND LEVERAGE CUTTER

G HL-9 Compound Leverage Diagonal Cutter. This excellent high leverage diagonal cutter is designed to provide tremendous power for easy cutting of large diameter wire and small bolts. The operation of the hinged jaws provides approximately four times more cutting leverage than standard diagonal cutters of the same size.

The cutter jaws are ground to give a highly efficient cutting angle and are replaceable when necessary. The maximum jaw opening is 3/8". A screw stop inside the cutter handle may be adjusted to keep jaws from touching each other when bolt is cut — this prevents dulling or nicking.

Full fashioned handles 7 1/4" long are comfortable with well rounded edges. The cutting jaws are bolted to the handles and the overall length of the tool is 9". The handles have a stamped "Vacuum Grip" cup pattern and the entire tool has a rust resistant black finish for long lasting protection.

NEEDLE NOSE PLIERS TO FIT EVERY NEED



HIGH QUALITY NEEDLE NOSE PLIERS

These pliers are the same basic design and finish and are offered in a range of sizes. Needle nose pliers are designed to handle small objects, reach into restricted areas or coil or loop wire. Their use on objects that are too large will destroy jaw alignment. These tools have a natural steel finish with full polish and handles have the raised "Vacuum Grip" cup pattern.

- A** No. 94 4½" Needle Nose without cutter. Jaw length 2½". For tiny jobs. Handles of this tool are smooth with no cup pattern.
- A** No. 95 6" Needle Nose without cutter. 1½" jaw length. A sturdy plier.
- A** No. 96 7½" Needle Nose without side cutter. 2¼" jaw length. A heavy duty tool.
- B** No. 196 7½" Needle Nose with side cutter. 2¼" jaw length. A dual purpose tool preferred by many mechanics.
- A** No. 97 8" Needle Nose without cutter. 3¼" jaw length. A real work horse.

INDUSTRIAL FINISH NEEDLE NOSE

The pliers are the same size, design, and high quality as the No. 96 and No. 196 listed at left but they have smooth handles and are polished only on the nose surfaces. Inside of jaw tips have straight gripping serrations.

- No. 96C 7½" Needle Nose without cutter.** 2¼" jaw length. Built to give long service.
- No. 196C 7½" Needle Nose with side cutter.** 2¼" jaw length. A good dual purpose plier.

GOOD PLIER CARE — LONG WEAR

Don't destroy jaw alignment or ruin cutting edges by hammering with a plier. It is safer and cheaper to use a hammer. Never use a plier to cut a "hot" wire, the resultant hole in cutter can't be removed. Use the right size gripper plier — if you can't grip the material and keep the plier jaws parallel, then the plier is too small. Don't use a needle nose plier to grip objects of larger diameter than the point of one of the jaws. Avoid using pliers to do a pipe wrench job. Rocking a diagonal cutter sideways to do a tough job may twist and break the jaws.

SPECIAL PURPOSE NEEDLE NOSE

- C** No. 497C 6½" Bent Needle Nose. 3¼" jaws. The long tapered nose slips through small openings to reach awkward jobs or around obstructions. Bent nose lets you see what you are doing. Natural steel finish on handles, polished head.
- D** No. 597C 7½" Pin Gripping Plier. 3¼" jaw length. Matched parallel and cross grooves in the jaw tips provide a sure grip for pulling stubborn pins. Long nose reaches into recesses. Polished head and natural steel finish on handles.
- E** No. 60C 7¾" Short Needle Nose Plier. 1½" jaw length. The short jaws provide greater gripping strength at the top. Natural steel finish with polished head.
- F** No. 60R 7¾" Duck Bill Plier. 1½" jaw length, 5/16" tip width. Preferred by aviation mechanics for pulling locknut safety wires. The long, flat jaws have a fine serrating on the inside of the tips which will grip without chewing up the wire ends. Useful for many gripping jobs. Natural steel finish on handles, semi-polished head.

GOOD QUALITY GRIPPING PLIERS



INTERLOCKING JOINT PLIERS

A HL-14 4" Interlocking Joint Plier will prove especially useful on small assemblies. The interlocking grooves provide 4 parallel jaw positions from ⅛" to ½". The 30° jaw angle provides easy working action. The tool has an attractive chrome plated finish to resist rust.

LARGE INTERLOCKING JOINT PLIERS

These pliers will prove useful for many applications especially in the maintenance field. The jaws are quickly adjusted to the desired opening and each plier provides a range that will adapt it to a wide variety of jobs. Jaw teeth are machined deep to permit a good, firm bite on the work. Handles are heavily coated with a dipped and bonded red plastic which acts as a cushion for the hands when pressure is applied. The exposed parts are chrome-plated to resist rust and give lasting satisfaction.

B HL-16 6" Interlocking Joint Plier especially useful for small assemblies. The interlocking grooves provide 5 parallel jaw positions from ⅜" to 1". The jaws are set at a 45° angle to the handle to provide easy working action. The tool has an attractive chrome plated finish to resist rust.

C HL-112P 12" Interlocking Joint Plier. Has 6 jaw positions with a maximum parallel opening of 2½".

C HL-116P 16" Interlocking Joint Plier. Has 11 jaw positions with a maximum parallel opening of 4¼".

C HL-120P 20" Interlocking Joint Plier. Believed to be the largest plier made, it has 11 jaw positions with a maximum parallel opening of 5½".

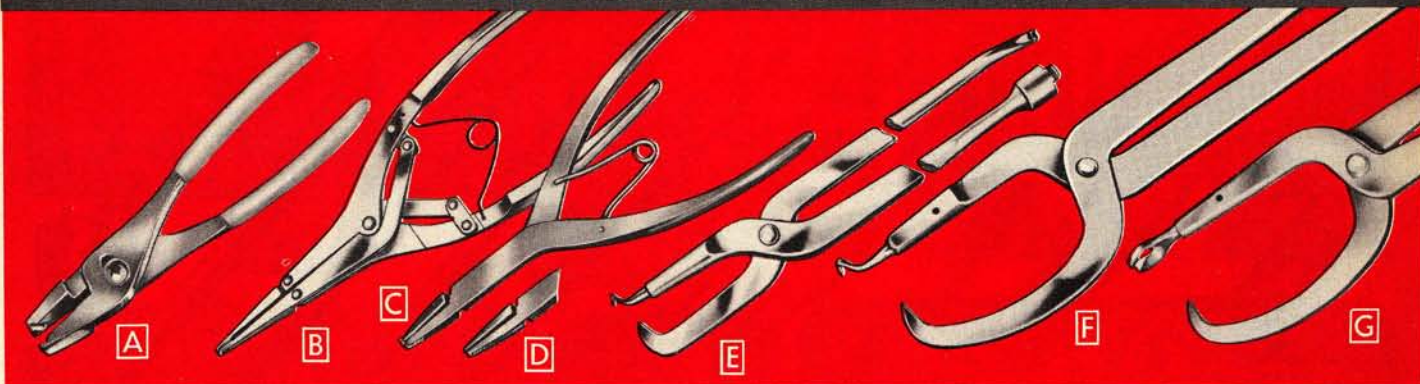
COMBINATION PLIERS

These modestly priced pliers are of two-position slip joint construction to permit a wide gripping capacity. The jaws provide an end gripping section with sharp, matching, parallel teeth and two curved sections with large deep cut teeth for pipe work, etc. This combination provides maximum contact for many different-shaped surfaces.

A wedge-type cutter located at the base of the jaws is cut at an angle to provide slicing action for easier cutting. Both these pliers are equipped with one bow handle designed to fit the palm and one full fashioned handle for the fingers to provide a firm comfortable grip. These units have an attractive chrome finish.

- D** CD-46C Combination Plier 6" long.
- E** CD-48C Combination Plier 8" long.

SPECIAL PLIERS FOR SPECIFIC SERVICE JOBS



A No. HCP-48BP 8" Corbin Hose Clamp Plier. $\frac{1}{16}$ " jaw thickness. Two position slip-joint... handles $\frac{3}{4}$ " to 2" diameter Corbin hose clamps. Jaw stops keep jaws $\frac{1}{8}$ " apart. Jaws have black finish, handles have hot-dipped baked-on plastic coating for comfortable grip.

No. HCP-46BP Small Corbin Hose Clamp Plier. Same as HCP-48BP above but only $6\frac{1}{32}$ " long for use on hose clamps on fuel lines, etc. as well as for outboard motors and hose connections smaller than $\frac{3}{4}$ ". Jaw stops keep jaws $\frac{1}{16}$ " apart.

B No. PJ-10A Lock Ring Plier with jaws that remain parallel from closed to maximum open position. Made for quick, easy and safe lock-ring removal and replacement. Can also be used on piston rings. Operates on lever principle which provides plenty of power to remove even the most difficult lock-ring. Maximum opening is $1\frac{1}{4}$ ", minimum .150". Length $10\frac{3}{16}$ ". Between handles, $3\frac{1}{4}$ ".

C No. 70A $8\frac{7}{8}$ " Lock Ring Plier. $\frac{5}{16}$ " tip width. Saves time and trouble when removing the horseshoe lock ring on brake shoe anchor pin. Jaw tips bend at a right angle and are serrated and indented on the outside to prevent slipping. Spring holds the jaws closed. Sand blasted natural steel finish.

A No. 700A Large Lock Ring Plier. Same design as No. 70A above but 14" long. Handles lock rings on 4-speed transmissions on trucks, earthmovers, tractors, etc.

D No. 70B $8\frac{7}{8}$ " Lock Ring Plier. $\frac{3}{32}$ " tip width. Similar to above but with straight tips. Works in close places for easy removal of horseshoe lock rings. Sand blasted natural finish. Spring tension closes plier.

E No. 131A Brake Spring Plier. A combination tool that can be used for the removal and replacement of Bendix, Lockheed and other hydraulic and mechanical brake springs. The steel hook on the jaw is replaceable if necessary. One handle has

socket end for removing springs set over a post, the other has a guide for replacing springs. $13\frac{1}{4}$ " long. Plated sanded finish.

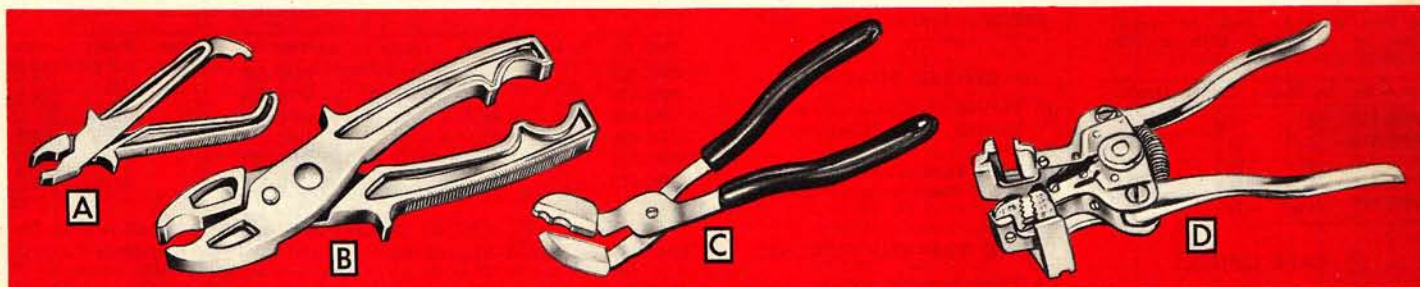
No. 31-3 Extra Hook. For above plier.

F No. 231 Truck Brake Spring Plier $20\frac{1}{4}$ " long. This rugged tool has plenty of leverage and power for removing and replacing heavy brake shoe return springs on some models of Huck, Lockheed, Wagner, etc.

Special tempered spring hook is held in the jaw with a roll pin and is easily replaced if damaged. Plated sand blasted finish.

No. 231-3 Replacement Hook for above plier.

G No. 331 Truck Brake Spring Plier. For fast, easy replacement of heavy duty double return springs. Designed for trucks with air brakes and wide shoes with a double web and a pin to hold the spring. The hook fits into the web rivet hole and a specially shaped cup adaptor fits the double return spring. Adaptor is replaceable if damaged. No. 331-3 Cup-Shaped Adaptor for above plier.



PLASTIC FUSE TONGS

Molded from pure plastic they have high insulating qualities, are resistant to oil, water and acid and have an impact strength which makes them practically unbreakable in proper use. They are also heat resistant to 300° F. Both tools are yellow. Ribbed handles give a firm grip, safety stops help prevent your hand from slipping over the jaws and onto "live" electrical parts.

A FZ-4A DELRIN PLASTIC FUSE TONG. 4" long and useful for pulling automotive fuses but has applications in electronic work. The jaws are $\frac{5}{16}$ " wide and grip fuses up to $\frac{3}{8}$ " diameter. The $\frac{1}{8}$ " thin hook on one handle and small indentation on the other are used to remove and hold short fuses with clamps close together.

B FZ-7 NYLON FUSE TONG. For removing high tension wires on automobiles while the engine is running and in conjunction with the SNAP-ON Anal-O-Scope and test meters. This $7\frac{1}{4}$ " long tool will pull cartridge fuses from $\frac{5}{16}$ " up to 1" diameter. This tool is useful in industrial plants for use on control boards, fuse panels, consoles, etc.

SPARK PLUG TERMINAL PLIERS

C GA-239 Pliers. Eliminate exposure to the shock hazard of 20,000 (or more) volts when disconnecting spark plug terminal leads during testing operations. This new tool has "Delrin 500" plastic jaws to withstand this voltage. 45 degree angled jaws provide the necessary clearance to keep your hand away from hot manifolds to eliminate burns. Two sizes of jaw openings handle a variety of applications.

WIRE STRIPPER PLIERS

D GA-116 Wire Stripper. As an aid when stripping a series of wires an adjustable guide on the head of the tool can be set to remove $\frac{1}{4}$ " to 1" of insulation with every squeeze of the handle, leaving the wire clean and ready for connecting. The specially hardened jaws are easily replaceable and have 6 openings to handle 8 wire sizes from 8 through 22. An adjusting screw regulates how close the jaws come together to further assure proper stripping of various types of insulation wire.

GA-116-2W-1 Replacement Blades, set of 2.

RETAINING RING PLIERS

CONVERTIBLE TYPE

Each plier is quickly converted to handle either internal or external retaining rings. Simply locate the knurled screw in No. 1 hole for external rings or in No. 2 hole for internal. Two sizes in straight tip and two sizes in 90° tip models are available. Black finish. Handles have red plastic covers.

A Straight Tip Models

PR-12 Small Plier, $5\frac{3}{4}$ " long.

PR-34 Large Plier, 8" long.

B 90° Tip Models

PR-129 Small Plier, $5\frac{3}{4}$ " long.

PR-349 Large Plier, 8" long.

SINGLE PURPOSE TYPE

For the positive and easy way to remove or install retaining rings. High grade steel, heat treated for strength and hardness. Standard black finish.

C INTERNAL RING PLIERS

(For compressing ring for insertion into a bore)

E Straight Tip

PR-21 Plier, $5\frac{7}{16}$ " long.

PR-23 Plier, $6\frac{3}{4}$ " long.

PR-25 Plier, 9" long.

F Offset Tip

PR-219 Plier, $5\frac{1}{4}$ " long.

PR-239 Plier, $6\frac{1}{2}$ " long.

PR-259 Plier, $8\frac{3}{8}$ " long.

D EXTERNAL RING PLIERS

(For expanding ring to fit over a shaft)

E Straight Tip

PR-22 Plier, $5\frac{7}{16}$ " long.

PR-24 Plier, 7" long.

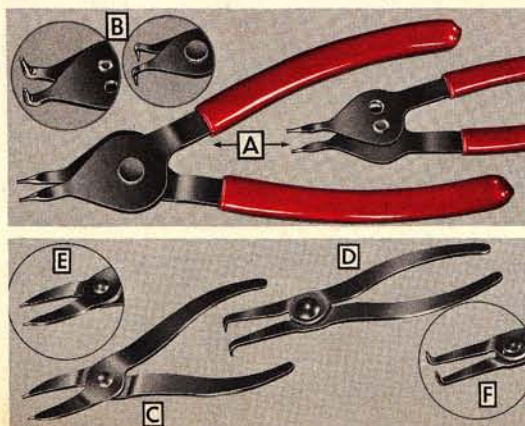
PR-26 Plier, $9\frac{3}{8}$ " long.

F Offset Tip

PR-229 Plier, $5\frac{5}{8}$ " long.

PR-249 Plier, $6\frac{3}{4}$ " long.

PR-269 Plier, 9" long.



Federal Specs: GGG-P-471C covers Lock Ring and Brake Spring Pliers indicated by symbol ▲.



Heads are shaped to a modified parabolic curve

Snap-on CHISELS AND PUNCHES ARE TOUGH AND DURABLE

Look at these special Snap-on features:

Special steels — Tough alloys are expertly forged, machined and heat-treated for uniform hardness. **Induction-drawn heads** — Hardness in striking heads is reduced to help prevent brittleness and add qualities that result in a slow-mushrooming, long-life striking surface. **Parabolic heads** — Heads on tools shown above are machined to a modified Parabolic curve in order to effect maximum striking force with mini-

mum metal displacement. These very desirable qualities contribute greatly to a controlled "mushroom" effect minimizing the chance of chipping or splitting. 70° chisel edge cuts truer and easier, stays sharp longer. **Firm, comfortable grip** is another SNAP-ON extra. Octo-square shape gives you more control, greater safety.

FLAT CHISELS

A Perfectly balanced. Have hand-ground cutting edges beveled at the best angle for long edge life and fast cutting on the average type of work. Can be re-edged with a file quickly when necessary.

Stock No.	Sq. Stock	Edge	Length
PPC-812	3/8"	13/32"	5 1/2"
PPC-816	7/16"	1/2"	6"
PPC-820	1/2"	5/8"	6 1/2"
PPC-824	5/8"	3/4"	7 1/4"
PPC-828	11/16"	7/8"	8"

CAPE CHISELS

Stock No.	Sq. Stock	Edge	Length
PPC-13	5/16"	1/4"	5 5/8"
PPC-14	3/8"	5/16"	6"

ROUND NOSE CAPE CHISEL

Stock No.	Sq. Stock	Edge	Length
PPC-12	3/8"	5/16"	6"

DIAMOND POINT CHISELS

Stock No.	Sq. Stock	Edge	Length
PPC-15	7/16"	1/32"	6"
PPC-19	3/8"	1/8"	5 1/4"

CENTER PUNCHES

E Forged from tough steel, heat treated and tempered for hardness.

PPC-3 1/8" Point Taper, 5" Length.
PPC-4 3/16" Point Taper, 6" Length.

LONG TAPERED PUNCHES

H These punches are invaluable for all kinds of lining up work . . . carefully drop forged and finished to give long, lasting service.

Stock No.	Sq. Stock	Point	Length
PPC-905	3/8"	3/16"	8"
PPC-908	7/16"	1/4"	8 1/2"
PPC-910	1/2"	5/16"	9"
PPC-912	9/16"	3/8"	9 1/2"

PIN PUNCHES

F Use a Starter Punch to loosen the pin or bolt and finish removal with a Pin Punch. The shaft is not tapered.

Stock No.	Sq. Stock	Point	Length
PPC-103	9/32"	3/32"	4 1/4"
PPC-104	5/16"	1/8"	4 3/4"
PPC-105	3/8"	9/32"	5"
PPC-106	3/8"	3/16"	5 1/4"
PPC-108	7/16"	1/4"	5 3/4"
PPC-110	1/2"	9/16"	6 1/4"

STARTER PUNCHES

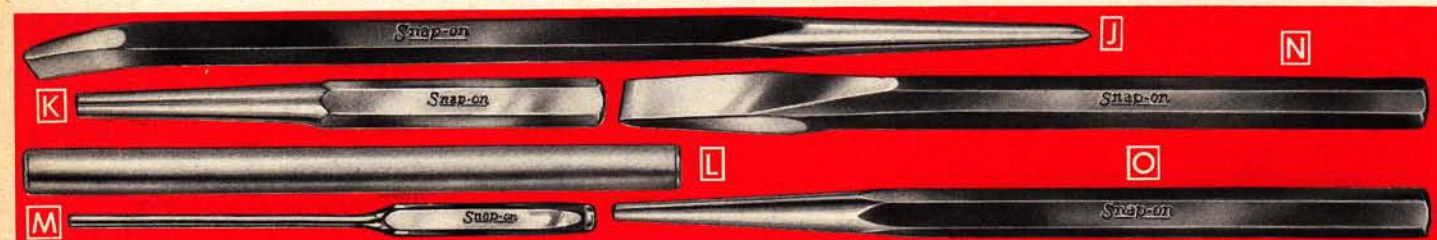
G When driving out pins, bolts, etc., always begin the job with a "Starter" punch. Shaft gradually tapers.

Stock No.	Sq. Stock	Point	Length
PPC-203	5/16"	3/32"	5 1/4"
PPC-204	3/8"	1/8"	5 3/4"
PPC-205	3/8"	5/32"	6"
PPC-206	7/16"	3/16"	6 1/4"
PPC-208	1/2"	1/4"	6 3/4"
PPC-210	9/16"	5/16"	7 1/4"

CHISEL AND PUNCH HOLDER

PPC-5 Holder. Saves bruised knuckles and prevents tool from dropping into hard-to-reach spots. It grips any tool or other item up to 1" diameter. Insert the tool to be held and tighten the handle to force the tool against the plastic coated head. The heavy coating of plastic affords a very firm grip on the tool. The holder has our popular black plastic contour handle — it's easy on the hands while giving you a very secure grip while working.

IMPORTANT. Protect Yourself . . . wear safety goggles or safety glasses when using chisels and punches. **Protect Others . . .** work in a booth or with portable screens and warn nearby workers. Avoid "mushroomed" striking ends — keep them ground to original size and shape. Keep chisel edges sharp and punch ends flat — do all grinding on a wheel equipped with a coolant to help avoid overheating the metal. Always use the proper size punch and hold it in direct line to the pin being driven. Proper tool care and usage helps prevent injuries.



PINCH BARS

Q SNAP-ON pinch bars are hammer forged from high grade alloy steel tempered for great strength. Tapered point end makes a sturdy lining-up tool.

No.	Stock	Edge	Length
1658	1/2"	5/8"	16"
2430	3/4"	7/8"	30"
2434	3/4"	3/4"	22"
2438	3/4"	7/8"	38"
2842	7/8"	1"	42"

NON-SPARKING BRASS PUNCHES

For driving out an object without damaging it or when sparks from a steel punch would be dangerous. Brass mushrooms easily and should be dressed frequently.

K B-912 Brass Punch. 8" long, 5/8" hex stock tapering to a 3/8" point.

L N-6578 Brass Punch. 10" long, 3/4" diameter round stock with chamfered ends.

LONG PIN PUNCH

M PPC-107L Long Pin Punch. 8" overall, has a straight drift section 7/32" diameter and 4 1/2" long. Useful for driving out long pin holding counter shaft and reverse idler shaft in Ford 3-speed transmissions.

LONG FLAT CHISELS

N Useful wherever a wide cutting edge and long reach is needed.

No.	Stock	Edge	Length
1020	5/8"	3/4"	11"
1024	3/4"	7/8"	12"
1628	3/4"	1 1/16"	16"
1832	7/8"	1"	18"

LFC-40 Set. Above 4 tools only.

LONG PUNCHES

O For heavy duty industrial work. Forged from high quality steel, heat treated for long service.

No.	Stock	Tip	Taper	Length
1210	5/8"	5/16"	4"	12"
1512	3/4"	3/8"	5"	15"
1816	7/8"	1/2"	6"	18"

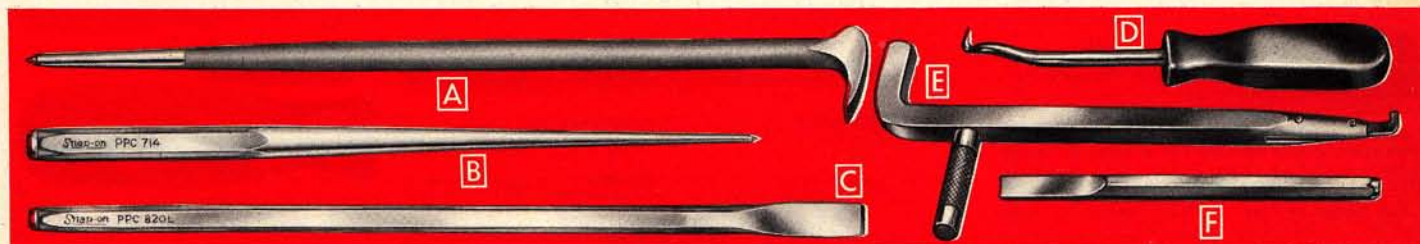
LP-30 Set. Above 3 tools only.



BUY **Snap-on** CHISELS AND PUNCHES IN FULL SETS

- A** PPC-710 Chisel and Punch Set. In Plastic tray. See contents in chart at right.
- B** PPSD-120-K Starter and Pin Punch Set. In C-123 kit bag. See contents in chart at right.
- PPSD-120 Set.** Above set without kit bag.
- C** PPCD-60-K Pin Punch Set. Six punches, PPC-103, PPC-104, PPC-105, PPC-106, PPC-108 and PPC-110 in C-64B kit bag.
- PPCD-60 Set.** Above set without the kit bag.
- D** PPCS-60-K Starter Punch Set. Six punches, PPC-203, PPC-204, PPC-205, PPC-206, PPC-208 and PPC-210 in C-64B kit bag.
- PPCS-60 Set.** Above set without the kit bag.
- E** PPVP-70-K Midget Punch and Chisel Set. Consists of seven midget punches and chisels, $\frac{3}{32}$ " square stock. Ideal for many tiny jobs. Includes PPC-402 Pin Punch 3" long, $\frac{1}{16}$ " pt., PPC-403 Pin Punch $3\frac{1}{4}$ " long, $\frac{1}{16}$ " pt., PPC-404 Center Punch $3\frac{3}{8}$ " long, PPC-405 Starter Punch $3\frac{3}{4}$ " long, $\frac{1}{16}$ " pt., PPC-406 Cape Chisel $3\frac{3}{8}$ " long, $\frac{3}{16}$ " edge, PPC-407 Round Nose Cape Chisel 4" long, $\frac{3}{32}$ " wide and PPC-408 Flat Chisel $4\frac{1}{8}$ " long, $\frac{1}{16}$ " edge, complete in C-72B kit bag.
- F** PPC-100-K Complete Chisel Set. In C-260 kit bag. See contents in chart at right.
- PPC-100 Set.** Above set without the kit bag.
- G** PPLT-40-K Long Tapered Punch Set. Four punches, PPC-905, PPC-908, PPC-910 and PPC-912 in C-42B kit bag.
- PPLT-40 Set.** Above set without the kit bag.
- H** PPC-200-K Chisel and Punch Set. In C-211A kit bag. See contents in chart at right.
- PPC-200 Set.** Above set without the kit bag.
- J** PPC-50-K Flat Chisel Set. Five chisels, PPC-812, PPC-816, PPC-820, PPC-824 and PPC-828 in C-50B kit bag.
- PPC-50 Set.** Above set without the kit bag.
- K** PPC-260-K Complete Chisel and Punch Set. Twenty-six tools in C-260 kit bag. See contents in chart at right.
- PPC-260 Set.** Above set without the kit bag.

Tool Description	CHISEL AND PUNCH SETS				
	A PPC-710	B PPSD-120	F PPC-100	H PPC-200	K PPC-260
PPC- 1 Chisel Gauge	X	—	—	X	X
PPC- 3 Center Punch	—	—	—	X	X
PPC- 4 Center Punch	—	—	—	X	X
PPC- 5 Tool Holder	X	—	—	—	X
PPC- 12 Round Cape Chisel	—	—	X	—	X
PPC- 13 Cape Chisel	—	—	X	—	X
PPC- 14 Cape Chisel	—	—	X	—	X
PPC- 15 Diamond Point Chisel	—	—	X	—	X
PPC- 19 Diamond Point Chisel	—	—	X	—	X
PPC-103 Pin Punch	X	X	—	X	X
PPC-104 Pin Punch	—	X	—	X	X
PPC-105 Pin Punch	X	X	—	X	X
PPC-106 Pin Punch	X	X	—	X	X
PPC-108 Pin Punch	—	X	—	X	X
PPC-110 Pin Punch	—	X	—	X	X
PPC-203 Starter Punch	X	X	—	X	X
PPC-204 Starter Punch	—	X	—	X	X
PPC-205 Starter Punch	X	X	—	X	X
PPC-206 Starter Punch	X	X	—	X	X
PPC-208 Starter Punch	—	X	—	X	X
PPC-210 Starter Punch	—	X	—	X	X
PPC-812 Flat Chisel	X	—	X	X	X
PPC-816 Flat Chisel	X	—	X	X	X
PPC-820 Flat Chisel	X	—	X	X	X
PPC-824 Flat Chisel	—	—	X	X	X
PPC-828 Flat Chisel	—	—	X	X	X
Kit Bag for Set	None	C-123	C-104B	C-211A	C-260



PRY BARS

- A** Rolling head exerts tremendous leverage for prying work... often used for prying out gears, etc. Point useful for lining-up work. Forged from fine alloy steel.

No. 650 6" Pry Bar.
 $\frac{3}{16}$ " diameter stock.
No. 1250 12" Pry Bar.
 $\frac{3}{16}$ " diameter stock.
No. 1650 16" Pry Bar.
 $\frac{3}{16}$ " diameter stock.
No. 2050 20" Pry Bar.
 $\frac{1}{16}$ " diameter stock.

LONG TAPER PUNCH

- B** PPC-714. Needed for sheet metal work and body work on late model cars. Also handy for lining up parts for assembly work. $\frac{3}{16}$ " beveled square stock, $\frac{5}{32}$ " point, $9\frac{1}{16}$ " taper. 14" long.

LONG FLAT CHISEL

- C** PPC-820L. Gives you the necessary reach to handle sheet metal and body work on late model cars. $\frac{1}{2}$ " beveled square stock, $\frac{3}{8}$ " edge width with 70° cutting angle, 16" overall length.

COTTER PIN TOOLS

- D** CP-3A Cotter Pin Puller. Point of blade is inserted into the loop of the pin and the pin jerked out. One of the bends can be used as a rolling head to build up leverage to pull even larger pins easily. Blade is specially heat treated for utmost strength. 8" long.

- E** S-9094B Cotter Pin Puller. Insert hook end into cotter pin. Hit anvil end sharply, out comes pin. Hook is of tough steel pinned in place and can be replaced easily. Over-all length is 10". Side handle gives a good grip.

S-9094A2X Hook and rivet set.

BUSHING CUTTER

- F** GA-1 Bushing Cutter. For splitting soft metal bushings in housings, steering sectors, spindles, pistons, connecting rods, etc., made from $\frac{1}{2}$ " octagon stock, $7\frac{1}{4}$ " long, $\frac{3}{16}$ " by $\frac{3}{16}$ " bit. Curved bit pushes the cut material away from the work. Makes it very easy to remove such bushings without damage to other parts and gets the job done fast.

Snap-on

SCREW DRIVERS

Short—Long—or Extra Strong...And a Tip For Any Screw Head



STANDARD TIP

ROUND SHANK SERIES

SQUARE SHANK SERIES

Snap-on STANDARD TIP SCREW DRIVERS

OUR MOST POPULAR SET

SDX-80 Screw Driver Set. Contains 5 standard blade, round shank drivers: SSD-1, SSD-2, SSD-4, SSD-6 and SSD-8 listed on page at right and 3 Phillips drivers: SSDP-22 (No. 2 bit), SSDP-31 (No. 1 bit) and SSDP-42 (No. 2 bit) listed on page 73. All blades are chrome plated. Packaged in an attractive carton with molded plastic insert to hold drivers in place.

Features that make SNAP-ON screw drivers your best buy

- **More Turning Power...** Contour-Grip Handles contribute to turning power thru:

 1. Proper size of handle to blade.
 2. A shape that fits the hand and will not slip under pressure.
 3. Square shape with rounded corners that is comfortable to hold and will not cut into your hand.
 4. Well rounded crown avoids discomfort to hand when bearing down on the screw.
 5. Black TENITE handles have a high dielectric strength and are practically unbreakable and unaffected by water, gas or oil.

- **Tough Blades...** High grade alloy steel is cold rolled to increase steel density for strength and resistance to twisting or breaking.
- **Shank Bolster...** The larger drivers have a hexagon shank bolster for a wrench assist on hard-to-turn screws. Bolster also prevents ramming shank through the handle.
- **Full Range of Tips...** Wide range of sizes available to fit all Standard, Phillips, Clutch, and Reed and Prince screws. Tips are precisely machined to properly fit and grip.
- **Blades well anchored...** Long crimped wings on shanks prevent turning in the handles.

REPLACEMENT BLADES

Save those good screw driver handles. When blade tips are worn beyond repair replace them with new SNAP-ON blades of identical type and size. Order by adding a suffix "RB" to the screw driver number, i.e. SSD-1-RB, SSDP-21-RB, etc. (exception, SSD-234 driver takes SSDE-43-RB blade).

ROUND SHANK SERIES

This series has chrome plated round shanks. The 2½" to 12" blades have a forged bolster which prevents forcing the blade into the handle. The bolster on the 8" and 12" sizes is hexagon shaped... a wrench can be applied to give extreme leverage. Tips are precision cross ground.

Replacement blades are available.

Stock No.	Blade Tip Width	Blade Length	Blade Dia.	Overall Length
SSD-1	¼"	1½"	¼"	3¼"
SSD-2	⅜"	2½"	7/32"	6"
SSD-4	¼"	4"	¼"	7¾"
SSD-6	⅝"	6"	5/16"	10¼"
SSD-8	¾"	8"	3/8"	12⅞"
SSD-12A	1⅝"	12"	7/16"	18⅞"

SSDS-50 Standard Screw Driver Set. One each of five screw drivers SSD-1 through SSD-8. SSD-12A not included.

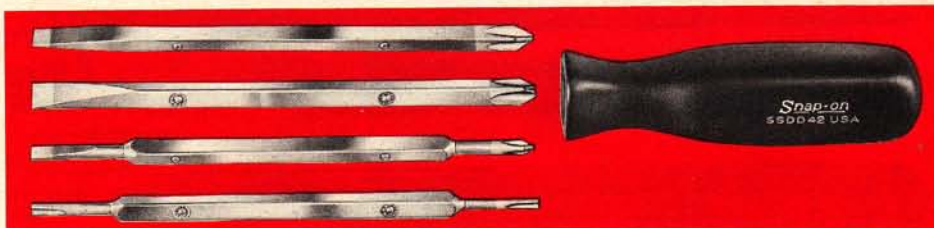
SQUARE SHANK SERIES

Many industrial users prefer square bladed screw drivers... the square stock adds to the twisting strength and when tight screws are turned a wrench can be applied to give additional leverage. These drivers have precision cross ground tips and are highest quality throughout.

Replacement blades are available.

Stock No.	Blade Tip Width	Blade Length	Blade Stock	Overall Length
SSD-42	3/16"	2⅜"	3/16"	5⅞"
SSD-44	¼"	4"	¼"	7¾"
SSD-46	⅝"	6"	9/32"	10¼"
SSD-48	¾"	8"	5/16"	12⅞"
SSD-412	7/16"	12"	3/8"	17½"

SSDA-50 Standard Screw Driver Set. One each of above five screw drivers SSD-42 through SSD-412.



REVERSIBLE BLADE SCREW DRIVER SET

SSDD-44 Reversible Blade Screw Driver Set. This useful set gives you the most popular sizes of standard-type, Phillips-type and Clutch-type screw driver tips in one convenient kit. The six-inch long square shank blades have a different tip at each end and interchange in the black TENITE plastic handle... a friction ball holds the blade in place leaving 3¼" blade length exposed. Blades are chrome plated. The handle resists gas, oil and grease and has a high dielectric strength. The set consists of:

SSDD-42A2R Black TENITE Handle.

SSDD-42-1 Blade. No. 2 Phillips and ¼" Standard Tips.

SSDD-44-1 Blade. No. 1 Phillips and ⅜" Standard Tips.

SSDD-44-2 Blade. No. 3 Phillips and ⅝" Standard Tips.

SSDD-44-3 Blade. .145" and .170" Clutch-type or figure-8 Tips.

SSDD-42 Reversible Blade Screw Driver. Consists of the SSDD-42A2R Handle and SSDD-42-1 Blade (listed above).



PHILLIPS TIP



CLUTCH-TYPE TIP



REED & PRINCE

Snap-on PHILLIPS DRIVERS

This is our finest line of Phillips screw drivers. They are built with superior alloy steel blades specially heat treated to give the wear resisting qualities needed for turning self-tapping screws. Blades are chrome plated.

Stock No.	Phillips Bit	Blade Length	Blade Diameter	Overall Length
SSDP-21	#1	1"	3/16"	2 3/4"
SSDP-22	#2	1 1/2"	1/4"	3 3/4"
SSDP-31	#1	3"	3/16"	5 7/8"
SSDP-42	#2	4"	1/4"	7 3/4"
SSDP-63	#3	6"	5/16"	10 1/4"
SSDP-64	#4	6"	3/8"	10 13/16"

SSDP-50 Phillips Driver Set, one each of above screw drivers except SSDP-21.

Snap-on CLUTCH DRIVERS

For turning screws of the clutch-bit type, also called figure-8 or butterfly screws. Blades are high grade alloy steel and the bit ends are machined to close tolerances to fit accurately in the screw head recess.

Stock No.	Blade Tip	Blade Length	Blade Diameter	Overall Length
SSDC-4	1/8"	4"	5/32"	6 7/8"
SSDC-5	5/32"	4"	5/32"	6 7/8"
SSDC-6	3/16"	4"	11/64"	7 1/4"
SSDC-8	1/4"	5"	15/64"	8 3/4"
SSDC-10	5/16"	5"	19/64"	9 1/4"
SSDC-12	3/8"	6"	13/32"	10 1/4"

SSDC-60 Clutch-type Screw Driver Set. One each of above screw drivers.

Snap-on R. & P. DRIVERS

Reed & Prince recessed cross-slot screws should not be confused with the Phillips screw for there is a great difference in the slots. Compare them closely and you will see that each requires a special and different type of screw driver.

Stock No.	Blade Tip	Blade Length	Blade Diameter	Overall Length
SSDR-1	1/4"	1 1/2"	1/4"	3 3/4"
SSDR-3	3/16"	2 1/2"	3/16"	5 3/8"
SSDR-4	1/4"	4"	1/4"	7 7/8"
SSDR-6	5/16"	6"	5/16"	10 1/4"
SSDR-8	3/8"	8"	3/8"	12 7/8"

SSDR-50 Reed and Prince Screw Driver Set. One each of above screw drivers.

Replacement blades are available for all screw drivers listed on this page. See ordering instructions on page 72.



A **SSDP-420 POZIDRIV® Screw Driver**. No. 2 Bit. Overall length 7 1/16", shank length 4". Because of the increasing use of the screws with POZIDRIV configuration we have added this new screw driver to the line. The configuration looks something like the Phillips but provides a tighter and more positive connection between driver and screw. See page 37 for socket type POZIDRIV Bits.

B **SSDP-162 Extra long Phillips Screw Driver**. No. 2 Bit. Shank length 16", overall length 19 15/16". Chrome plated shank with vapor blasted tip. Excellent for headlight adjustment.

C **SSDP-102 Long Phillips Screw Driver**. A No. 2 Phillips bit on a 9 5/8" long blade. This is over twice the length that most No. 2 bit drivers provide and reaches into deep recesses. The superior alloy steel round shank is 1/4" diameter and is chrome plated. Overall length is 13 1/2". Black TENITE handle is shock resistant.

D **SSDP-319 Thin Phillips Screw Driver**. A No. 1 Phillips bit on a 3 1/4" blade securely anchored in a Contour-grip, black plastic, shock resistant handle. The blade is round and is 1/8" in diameter.

E **SSDEP-30 Very Thin Phillips Screw Driver**. No. 0 Phillips bit on a 3" long blade that is firmly anchored in a black plastic handle. Basic square shape handle has rounded edges to provide a firm, comfortable grip. It also has a smooth end recess for finger pressure application during turning operations. This driver is needed on many intricate assembly jobs.

F **SSD-234 Short Screw Driver**. 3" long blade made of 5/64" diameter round stock with standard type tip 1/8" wide. Contour-Grip black plastic handle is shock-resistant. Blade is chromeplated.

G **SSD-18 Heavy Duty Screw Driver**. A powerful 18" blade screw driver... especially useful in industrial use for screw heads of 5/8" diameter and larger. The alloy steel blade has a 1/2" wide tip and is made of 7/16" square stock which can be turned with a wrench to move tight screws. The large Contour-Grip plastic handle gives plenty of leverage and is shock resistant.

H **SSD-422A Extra Long Screw Driver**. Slender 21 3/4" blade that gets to those hard-to-reach screws. Blade is 5/16" round stock, it is made from fine alloy steel and heat treated to give resilience to the shaft and hardness and toughness to the tip. Tip is cross ground to give the best fit and grip in the screw slot. Tip size is 5/16" x 1/32". Overall length of this screw driver is 25 1/2".



A THIN BLADE SCREW DRIVERS

Here are real timesaving tools for electrical and electronic assembly and maintenance, or any other limited space work. Thin driver blade tip is the same width as the shank diameter, to follow screw below surface or work among intricate assemblies. Blades are made from extra-tough alloy steel for long life. Tips are precision-machined to seat properly in screw slots to prevent slippage and damage. Crimped shanks anchor firmly to prevent turning in handles. Plastic handles are comfortable to hold, have a high dielectric strength and are practically unbreakable. Handle end is recessed for finger pressure during the screw turning operation.

Note: Replacement blades available. See page 72.

With 3/16" Blade and Tip (Illustrated)

Stock Number	Blade Length	Weight
SSDE-63	3"	1 oz.
SSDE-64	4"	2 oz.
SSDE-66	6"	2 oz.
SSDE-68	8"	2 oz.
SSDE-610	10"	2 oz.

SSDE-650 Set of 5 Thin Blade screw drivers with 3/16" blade.

With 1/8" Blade and Tip Similar to above but thinner.

Stock Number	Blade Length	Weight
SSDE-42	2"	1 oz.
SSDE-43	3"	1 oz.
SSDE-44	4"	1 oz.
SSDE-46	6"	1 oz.
SSDE-48	8"	2 oz.

SSDE-450 Set of 5 Thin Blade screw drivers with 1/8" blade.

SSDE-100 Set of 10 Thin Blade screw drivers consisting of all ten Thin Blade screw drivers listed above.



B CABINET SCREW DRIVERS

Our Cabinet screw drivers have long, thin blades of high test alloy steel, carefully heat treated to give them tough working tips and strong resilient shanks. They can be used on many jobs where there is little clearance and where a long reach is needed to turn smaller screws. Handles are black plastic in contour grip design. They are practically unbreakable and have high dielectric strength. Recommended for electrical and body work. **Note:** Replacement blades available.

Stock No.	Blade Length	Blade Diam.	Overall Length
SSD-143	3"	3/16"	6 1/4"
SSD-146	6"	3/16"	9 3/8"
SSD-1410	10"	3/16"	13 1/4"

SCD-30 Screw Driver Set. One each of above screw drivers.



MAGNETIC SCREW DRIVER SETS

A powerful Alnico magnet anchored in the hollow shaft holds the bits in the shaft, making them easy to interchange and magnetizes the bit for holding and starting steel screws. One bit remains in the magnetic shank while others are carried in the hollow plastic handle under the plastic cap. When tip wears you do not throw away the entire screw driver — just replace the tip. Handle is plastic.

SSDM-1 Magnetic Screw Driver Set. Handle is 4" long, shank is 1 1/2" long. Includes 4 bits, SDM-211, SDM-213, SDM-221, SDM-222 listed below.

SSDM-40 Magnetic Screw Driver Set. Contains handle with 4" shank and 4 bits, SDM-211, SDM-213, SDM-221, SDM-222.

SSDM-80 Magnetic Screw Driver Set. Contains handle with 8" shank and 4 bits, SDM-211, SDM-213, SDM-221, SDM-222.

SDM-211 St'd Bit. .031" x 3/16" tip.
SDM-212 St'd Bit. .035" x 1/4" tip.
SDM-213 St'd Bit. .040" x 1/4" tip.

SDM-221 Phillips Bit. No. 1 tip.
SDM-222 Phillips Bit. No. 2 tip.
SDM-231 Reed and Prince Bit.

Note: See page 75 for listing of other bits with 1/4" hex shanks that can be used in above magnetic handles.



C PHILLIPS SCREW DRIVERS

These Phillips tip screw drivers have handles of selected hardwood with smooth finish in natural color. The blades are made of fine quality steel, tempered to give utmost service. A heavy steel ferrule anchors the blade in the handle. Blades have a sand blasted finish. Many users prefer these wood handle screw drivers. **Note:** We cannot furnish replacement blades for this series.

Stock Number	Bit	Blade Lgth.	Blade Dia.	Overall Length
SDWP-241	#2	1 1/2"	1/4"	3 3/16"
SDWP-133	#1	3"	3/16"	7"
SDWP-123	#1	3 1/4"	1/8"	7 1/4"
SDWP-244	#2	4"	1/4"	9 1/4"
SDWP-355	#3	6 1/8"	5/16"	12 1/4"

SDWP-50 Phillips Set. All five screw drivers listed above.



SPARK TEST SCREW DRIVERS

The neon tube fitted into handle tells condition of plug by type of flash. Brilliant flash means good condition — a thin flash indicates too narrow a gap — no flash means a short. Slim blades and plastic handles make these excellent for electrical work.

D SSD-214 Spark Testing Screw Driver. 2 1/4" blade. This tool is fitted with a pocket clip.

E SSD-145 Spark Testing Screw Driver. 5 1/8" blade.

MISCELLANEOUS SCREW DRIVERS

F SSD-153. A large handle gives you power — a short blade lets you get close to the work so you can bear down. Tip is 1/16" thick and 3/8" wide. Blade length is 2 1/32", 7 5/32" overall length.

G SSD-204 Screw Driver. The 2" long blade has a magnetized tip. The plastic handle is fitted with a convenient pocket clip. 1/8" tip, overall length 4 3/4".

H SSDP-242. #2 Phillips. Blade length is 1 1/2". Over-all length is 5 1/8". Blade is chrome plated.

J SSDP-243. #2 Phillips. Has stubby handle with blade length of 3", overall 4 3/4".

K SD-11A Stubby Screw Driver. The end of the fluted plastic handle is concave and acts as a finger pivot. 7/8" blade, 1 11/16" overall length.

L Stubby Phillips Drivers. Yellow, fluted plastic handles of high dielectric strength have concave end to act as finger pivot. Each has a 13/16" long blade and is 1 1/16" overall.

SDP-11. No. 1 Phillips screw driver.

SDP-12. No. 2 Phillips screw driver.

Note: Replacement blades available for above miscellaneous screw drivers, except SSD-204. See page 72.



SAVE MONEY WITH THESE FINE SCREW DRIVERS

Quality screw drivers — economically priced. Blades are of tough steel, carefully heat-treated and precision ground. Tenite handles provide a firm grip, are very durable, and are resistant to the usual solvents encountered in garage operations.

(A) STANDARD TIP DRIVERS

Stock No.	Blade Tip	Blade Length	Blade Diameter	Overall Length
UDS-101	1/4"	1 1/2"	3/16"	3 3/4"
UDS-102	3/16"	2 1/2"	3/16"	5 1/4"
UDS-104	1/4"	4"	1/4"	7 3/4"
UDS-106	5/16"	6"	5/16"	10 1/4"
UDS-108	3/8"	8"	3/8"	12 3/4"
UDS-112	1 3/32"	12"	3/8"	16 3/4"

UDS-156 Set. Consists of one each of the above standard tip drivers except UDS-112.

(B) PHILLIPS TIP DRIVERS

Stock No.	Phillips Bit	Blade Length	Blade Diameter	Overall Length
UDP-122	No. 2	1 1/2"	1/4"	3 3/4"
UDP-131	No. 1	3"	3/16"	6 1/4"
UDP-142	No. 2	4"	1/4"	7 3/4"
UDP-163	No. 3	6"	5/16"	10 3/4"

UDP-140 Set. One each of above Phillips drivers.

UDS-150-K Screw Driver Set. Consists of UDS-102, UDS-104, UDS-106, UDP-131 and UDP-142.

(C) A GOOD QUALITY SET AT LOW COST

SDW-7 Screw Driver Set. Seven different sizes of good quality, standard tip screw drivers at a money-saving price. Blade sizes included are 2" x 3/16", 2" x 1/8", 4" x 3/16", 6" x 1/4", 8" x 3/16", 8" x 5/16" and 10" x 1/4" . . . give you the right size driver for most jobs. The square shanks are securely anchored in wood handles. The natural finish wood handles are square with rounded edges to provide a firm grip. Sold only as a complete set.

(D) CHANGEABLE TIP SCREW DRIVER SET

SSDH-80 Screw Driver Set. Gives you four screw drivers in one . . . the four bits furnished are stored in the transparent amber plastic handle. Bits are grooved to engage a snap ring in the hollow end of the shaft . . . they are held securely while in use, yet are easily released by pulling. Shank length with bit is 5 1/4", overall length 9 1/2". Handle resists solvents found in service shops, etc. Handy screw top seals the bit storage. Set contains these four bits:

SDM-221	No. 1 Phillips	SDM-211	3/16" Standard
SDM-222	No. 2 Phillips	SDM-213	5/32" Standard

NOTE: Bits listed below that fit the FSB-8 1/4" Hex Socket also fit the handle of the above SSDH-80 Set.

RATCHETING OFFSET SCREW DRIVER SET

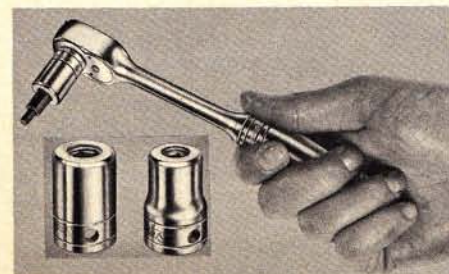
CRA-180A-K Ratcheting Offset Screw Driver Set. Consists of all 17 Adaptors listed below and shown at right, together with R-810S Ratchet, in plastic packet C-24A and GA-168 Metal Case. The combination of Ratchet-Boxsocket and adaptor bits provides an offset ratcheting screw driver for

many uses where space is limited. Rubber retaining ring on each bit holds the bit in the ratchet opening. Ratchet has 1/4" and 5/16" hex openings and can be used to turn nuts of this size in addition to its use with these screw driver bits.

Stock No.	Description	Stock No.	Description	Stock No.	Description
A CRD-8A	1/4" Square Drive	G CRA-2A	1/16" Hex Driver	N CRA-5A	5/32" Hex Driver
B CRS-8A	1/4" Screw Driver	H CRA-2.5A	5/64" Hex Driver	O CRA-6A	3/16" Hex Driver
C CRS-12A	3/8" Screw Driver	J CRA-3A	3/32" Hex Driver	P CRA-7A	7/32" Hex Driver
D CRP-1B	#1 Phillips	K CRA-3.5A	7/64" Hex Driver	Q CRA-8A	1/4" Hex Driver
E CRP-2B	#2 Phillips	L CRA-4A	1/8" Hex Driver	R CRA-10A	5/16" Hex Driver
F CRA-.050A	.05" Hex Driver	M CRA-4.5A	9/64" Hex Driver	S R-810S	Ratchet

SPECIAL HEX SOCKETS FOR USE WITH SCREW DRIVER BITS

FBS-8. 1/4" Hex Socket. 3/8" drive.
FBS-9. 5/16" Hex Socket. 3/8" drive.

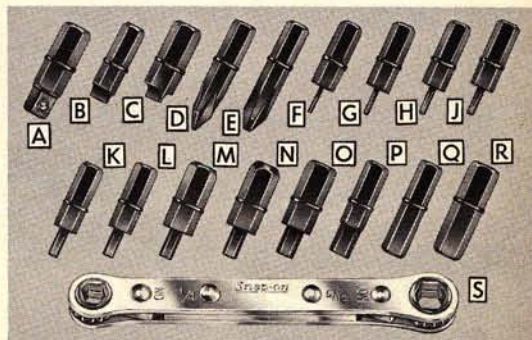


Get more use from the CRA-180A-K Set (above) by adding these two sockets. Speed many jobs by using the socket and a 3/8" square drive ratchet.

Most of the Bits listed below are included in the set shown above, four of them are in the SSDH-80 Set at top of page. Following three are not included in above sets:

CRA-45 5/32" Hex Driver, 1/4" hex shank.
SDM-212 1/4" Standard Tip, 1/4" hex shank.
SDM-213 Reed and Prince, 1/4" hex shank.

Note: All of the Screw Driver Bits listed for use with the FBS-8 Socket may also be used with the SDM-40 and SDM-80 Magnetic Screw Driver Sets listed on page 74.



Complete List of Bits That Fit
The FBS-8 and FBS-9 Hex Sockets

Stock No.	Bit Type	Stock No.	Bit Type
Bits for our FBS-8 1/4" Hex Socket			
CRS-8A	1/4" Standard Tip	CRA-45	5/32" Hex Driver
CRP-1B	No. 1 Phillips	CRA-7A	7/32" Hex Driver
CRP-2B	No. 2 Phillips	CRA-8A	1/4" Hex Driver
CRA-.050A	.05" Hex Driver	SDM-211	.031 x 1/16" Std. Tip
CRA-2A	1/16" Hex Driver	SDM-212	.035 x 1/4" Std. Tip
CRA-2.5A	5/64" Hex Driver	SDM-213	.040 x 1/4" Std. Tip
CRA-3A	3/32" Hex Driver	SDM-221	No. 1 Phillips
CRA-3.5A	7/64" Hex Driver	SDM-222	No. 2 Phillips
CRA-4A	1/8" Hex Driver	SDM-231	Reed and Prince
Bits for our FBS-9 5/16" Hex Socket			
CRD-8A	1/4" Square Driver	CRA-5A	5/32" Hex Driver
CRS-12A	3/8" Std. Tip	CRA-6A	3/16" Hex Driver
CRA-4.5A	9/64" Hex Driver	CRA-10A	5/16" Hex Driver



SCREW STARTERS SAVE A LOT OF TIME

The spring loaded steel bit grips the screw slot walls so tightly that it will withstand an eight-pound pull . . . yet automatically releases when screw pressure reaches a certain tension. This feature protects the screw-starter from damage. There are no claws or sliding ferrules to hit against obstructions and the slender handles reach into close places. The standard sizes have blades $\frac{3}{32}$ " wide and .032" thick. Small sizes have blades $\frac{5}{32}$ " wide and .020" thick.

STARTERS FOR STANDARD SLOTTED SCREWS

▲ A With Aluminum Handles

Standard Size	Small Size	Overall Length
SS-3	GA-229	2½"
SS-5	GA-230	5¼"
SS-9	GA-231	9½"
SS-15	—	15"

SS-40 Set. One each of the four standard size screw starters listed above.

© SCREW STARTER—PICK-UP TOOL

SSM-5 Screw Starter and Pick-up Tool. This pocket tool is similar to the SS-5 Screw Starter listed above with the standard size holding bit. In addition it has a magnet pick-up at the handle end. The aluminum handle is knurled and has a pocket clip.

▲ B With Plastic Handles

Standard Size	Small Size	Overall Length
GA-11N	GA-232	2½"
GA-12N	GA-233	6"
GA-13N	—	9"

SS-30N Set. One each of three standard size screw starters listed above.

© D STARTERS FOR PHILLIPS SCREWS

Have the same outstanding features as the Starters described above but for Phillips head screws. Handles are of aluminum with knurled portion for firm grip.

GA-260 Short Starter, 2½" overall.
GA-261 Long Starter, 5¼" overall.

OFFSET SCREW DRIVERS

Excellent for reaching that out-of-the way screw head. This complete set in your tool box will let you handle any size or type of screw.

FOR PHILLIPS HEAD SCREWS

E ST-034A Phillips Head Offset Screw Driver. With No. 3 and No. 4 bits. 6" long. Cadmium plated to resist rust.

F ST-012A Phillips Head Offset Screw Driver. With No. 1 and No. 2 bits. 4¾" long. Cadmium plated to resist rust.

FOR STANDARD SLOTTED SCREWS

G 040 Offset Screw Driver with $\frac{3}{8}$ " x $\frac{3}{4}$ " blades. 5½" long, $\frac{5}{16}$ " stock. Cadmium plated to resist rust.

H 030 Offset Screw Driver with $\frac{5}{16}$ " x $\frac{1}{2}$ " blades. 5" long, $\frac{5}{16}$ " stock. Cadmium plated to resist rust.

J 020 Offset Screw Driver with $\frac{1}{4}$ " x $\frac{1}{2}$ " blades. 5" long, $\frac{1}{4}$ " stock. Cadmium plated to resist rust.

HAMMERS—FOR HEAVY BLOWS OR FOR LIGHT TAPPING



▲ A BALL PEEN HAMMERS

Quality from start to finish. Well balanced, correctly designed and heat treated and drop forged from high grade alloy steel, they will withstand long, hard service. Handles are of second growth, well seasoned hickory, carefully turned so that grain runs full length. Securely anchored to head. Extra handles can be purchased—each comes with metal and wood wedges.

Hammer Complete		Extra Handle
Stock No.	Weight	Stock No.
BP-202	2 oz.	BPH-202-2
BP-204	4 oz.	BPH-204-2
BP-208	8 oz.	BPH-208-2
BP-212	12 oz.	BPH-212-2
BP-216	1 lb.	BPH-216-2
BP-220	1¼ lbs.	BPH-220-2
BP-224	1½ lbs.	BPH-224-2
BP-232	2 lbs.	BPH-224-2
BP-40	2½ lbs.	BPH-40
BP-48	3 lbs.	BPH-40

B PLASTIC TIP HAMMERS

For work where precision finished or delicate parts would be injured by metal hammers.

The tips are tough plastic and will stand a lot of pounding without undue marring of the faces . . . tips are easily replaced when necessary. Three sizes are available. Center part of head is chrome plated.

Hammers Complete		Extra Tip
Stock No.	Weight	Stock No. Diam.
BH-91	½ lb.	BH-91-2 1¼"
BH-92	1 lb.	BH-92-2 1¾"

BF-603-2 Wood H'dle for BH-91
BF-611-2 Wood H'dle for BH-92

C SOFT FACE HAMMER

For working on metal or wood parts without damage . . . wherever pounding without marring is required. The replaceable tips are designed to resist chipping, flaking, and mushrooming. Handles are unidirectional fiberglass, made by bonding together 1,200,000 strands of glass, reinforced with polyester plastic. They are stronger than wood and are impervious to dry rot, termites, beetles, splintering, petroleum products, common industrial chemicals, high and low temperatures, fungus, and warpage. Handle grips are shock absorbing, non-slip, red plastic material.

BH-232 Two Pound Hammer. Furnished with two replaceable tips, medium and hard. A tough nylon tip available separately is designed to withstand harder use. Tips thread directly into the solid head. Head is 3½" long, 1½" tip diameter, handle is 13".

BH-232-2 Medium Repl. Tip. Furnished.

BH-232-3 Hard Repl. Tip. Furnished.

BH-232-4 Tough Nylon Tip. Optional.

D BRASS HAMMERS

Especially suited for driving bushings and gears, doing body work or work on standard and automatic transmissions. Handles are high grade, seasoned hickory, attached to heads with steel and wood wedges. Handles are 11½" long.

BH-16 Brass Hammer, 1 lb. Size, head is 3" long, 1¼" diameter.

BH-24 Brass Hammer, 1½ lb. Size, head is 4" long, 1¼" diameter.

BH-32 Brass Hammer, 2 lb. Size, head is 4½" long, 1¾" diameter.

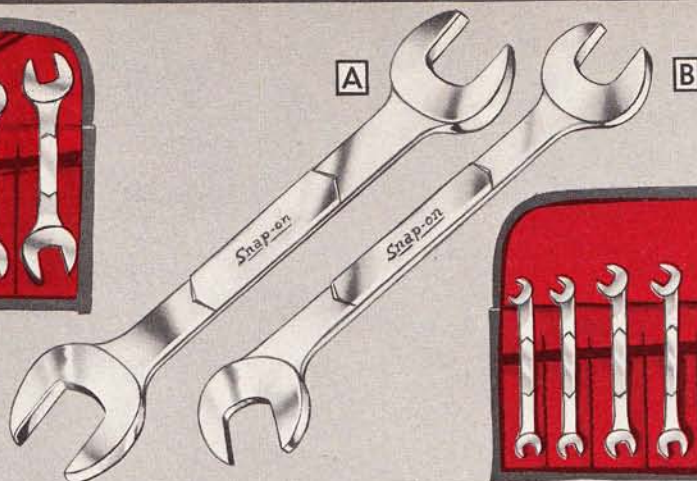
BODY BUMPING HAMMERS

These are shown with other body tools on page 134.

SMALL OPEN ENDS AND TIME SAVING TUNE-UP KIT



C

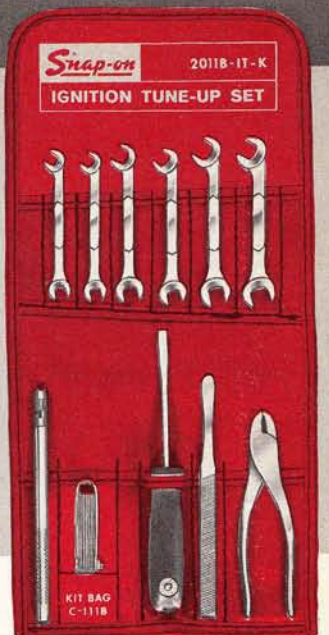


A

B



D



E

A SHORT OPEN ENDS

For nuts from $\frac{3}{16}$ " to $\frac{1}{16}$ ". Excellent for working in cramped places. Forged from special alloy steel to withstand tough usage. Heads are precision machined. Two sizes on each wrench. Chrome plated finish.

Stock No.	Wrench Size	Head Thickness	Length
J-1214	$\frac{3}{16}$ " & $\frac{7}{32}$ "	$\frac{3}{32}$ "	$2\frac{3}{4}$ "
J-1618	$\frac{1}{4}$ " & $\frac{9}{32}$ "	$\frac{7}{64}$ "	$3\frac{1}{8}$ "
J-2022	$\frac{5}{16}$ " & $\frac{11}{32}$ "	$\frac{1}{8}$ "	$3\frac{1}{2}$ "
J-2428	$\frac{3}{8}$ " & $\frac{7}{16}$ "	$\frac{9}{64}$ "	$3\frac{3}{8}$ "
J-3236	$\frac{1}{2}$ " & $\frac{9}{16}$ "	$\frac{5}{32}$ "	$4\frac{1}{4}$ "

C J-805A-K Short Open End Set. Contains one each of the above wrenches in C-52D vinyl-fabric kit bag.

J-805A Set, tools only.

B IGNITION OPEN ENDS

Make easy work of those ignition, carburetor, radio, and electrical jobs which take tiny, short handled tools. Six largest tools are made in pairs with two different sizes on each wrench . . . each size duplicated at a different angle.

Stock No.	Wrench Sizes		Head Thickness	Overall Length
	15° End	60° End		
DS-88	$\frac{1}{8}$ "	$\frac{1}{8}$ "	$\frac{3}{32}$ "	$2\frac{3}{4}$ "
DS-1010	$\frac{5}{32}$ "	$\frac{5}{32}$ "	$\frac{3}{32}$ "	$2\frac{7}{8}$ "
DS-1212	$\frac{3}{16}$ "	$\frac{3}{16}$ "	$\frac{3}{32}$ "	$2\frac{7}{8}$ "
DS-1516	$\frac{15}{64}$ "	$\frac{1}{4}$ "	$\frac{7}{64}$ "	$3\frac{1}{4}$ "
DS-1615	$\frac{1}{4}$ "	$\frac{15}{64}$ "	$\frac{7}{64}$ "	$3\frac{1}{4}$ "
DS-1820	$\frac{9}{32}$ "	$\frac{5}{16}$ "	$\frac{1}{8}$ "	$3\frac{1}{2}$ "
DS-2018	$\frac{5}{16}$ "	$\frac{9}{32}$ "	$\frac{1}{8}$ "	$3\frac{1}{2}$ "
DS-2224	$\frac{11}{32}$ "	$\frac{3}{8}$ "	$\frac{9}{64}$ "	$3\frac{3}{4}$ "
DS-2422	$\frac{3}{8}$ "	$\frac{11}{32}$ "	$\frac{9}{64}$ "	$3\frac{3}{4}$ "

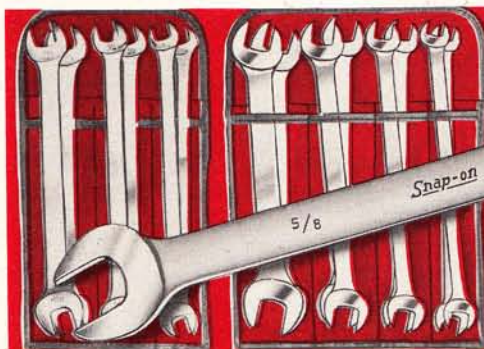
D DS-806-K Ignition Wrench Set. Consists of six wrenches, DS-1516 through DS-2422, in C-65D kit bag.

DS-806 Set. Above set tools only.

E TUNE-UP KIT

2011B-IT-K Tune-Up Kit. A convenient set of ignition tools for fast, easy tune-up work. Small enough to fit in your pocket, yet complete with the tools you need. Ignition wrenches included are in pairs with two different sizes on each wrench, sizes duplicated for use in limited space. C-111B vinyl-fabric kit bag folds in center and has a snap fastener.

Stock No.	Description
5	$4\frac{1}{2}$ " Midget Pliers
HB-5	Ignition Point File
SSD-143	Small Screw Driver, $\frac{3}{16}$ " Tip.
SS-5	Screw Starter
FB-316A	Ign. & Spark Plug Feeler Ga.
DS-806	Set of 6 Ign. Open Ends listed at left.



A TAPPET WRENCHES — LONG, SLIM HANDLES

- Disc Thin, pear Shaped Jaws Need Minimum Work Space.
- Long, Slim Handles Keep Your Hand Clear of Hot Motor.
- Both Heads Set At An Angle For Better Tool Adaptability.

Thin, pear-shaped jaws easily get into those close quarters around the tappet adjusting screws, tappets and lock nuts . . . and the long slim handles keep your hands clear of hot motors — prevent unpleasant burns. The wrenches are light and well balanced . . . features you will appreciate on the job when usually two wrenches are worked like scissors in one hand and a third wrench is used in the other hand. SNAP-ON gives you the highest qualities of strength and durability through fine alloy steels and controlled heat treatment. Chrome plated.

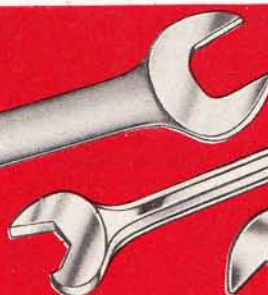
Stock Number	Wrench Sizes	Head Thickness	Overall Length
▲ LTA-1416	$\frac{7}{16}$ " & $\frac{1}{2}$ "	$\frac{11}{64}$ "	$9\frac{1}{2}$ "
▲ LTA-1618	$\frac{1}{2}$ " & $\frac{9}{16}$ "	$\frac{3}{16}$ "	$9\frac{1}{2}$ "
▲ LTA-2022	$\frac{5}{8}$ " & $\frac{11}{16}$ "	$\frac{3}{16}$ "	$9\frac{1}{2}$ "
▲ LTA-2428	$\frac{3}{4}$ " & $\frac{7}{8}$ "	$\frac{13}{64}$ "	$9\frac{1}{2}$ "

LTA-806-K Set. Six wrenches, two each of LTA-1416, LTA-1618, LTA-2022, in C-36D kit bag.

LTA-806 Set. Tools only.

LTA-808-K Set. Eight wrenches, two of each size, in kit bag C-48D.

LTA-808 Set. Tools only.



B

B RATCHETING OPEN ENDS

These wrenches give you ratcheting speed with the convenience of open-end wrenches . . . permit you to run the nut all the way down without removing the wrench from the nut. They are practical, time saving tools that belong in every tool kit. Chrome plated.

Wrench Size	Stock No.	Head Thickness	Overall Length
$\frac{3}{8}$ " & $\frac{7}{16}$ "	RS-1214	$\frac{5}{32}$ "	5"
$\frac{7}{16}$ " & $\frac{1}{2}$ "	RS-1416	$\frac{3}{16}$ "	$5\frac{1}{2}$ "
$\frac{1}{2}$ " & $\frac{9}{16}$ "	RS-1618	$\frac{7}{32}$ "	6"
$\frac{9}{16}$ " & $\frac{5}{8}$ "	RS-1820	$\frac{1}{4}$ "	$6\frac{1}{2}$ "

RS-804A Ratcheting Open End Wrench Set. Consists of one each of above four tools.

C ADJUSTABLE WRENCHES

Extra strong, extra-thin jaws to get into tight places. High quality alloy steel for strength. For working convenience and durability you cannot buy a better adjustable wrench.

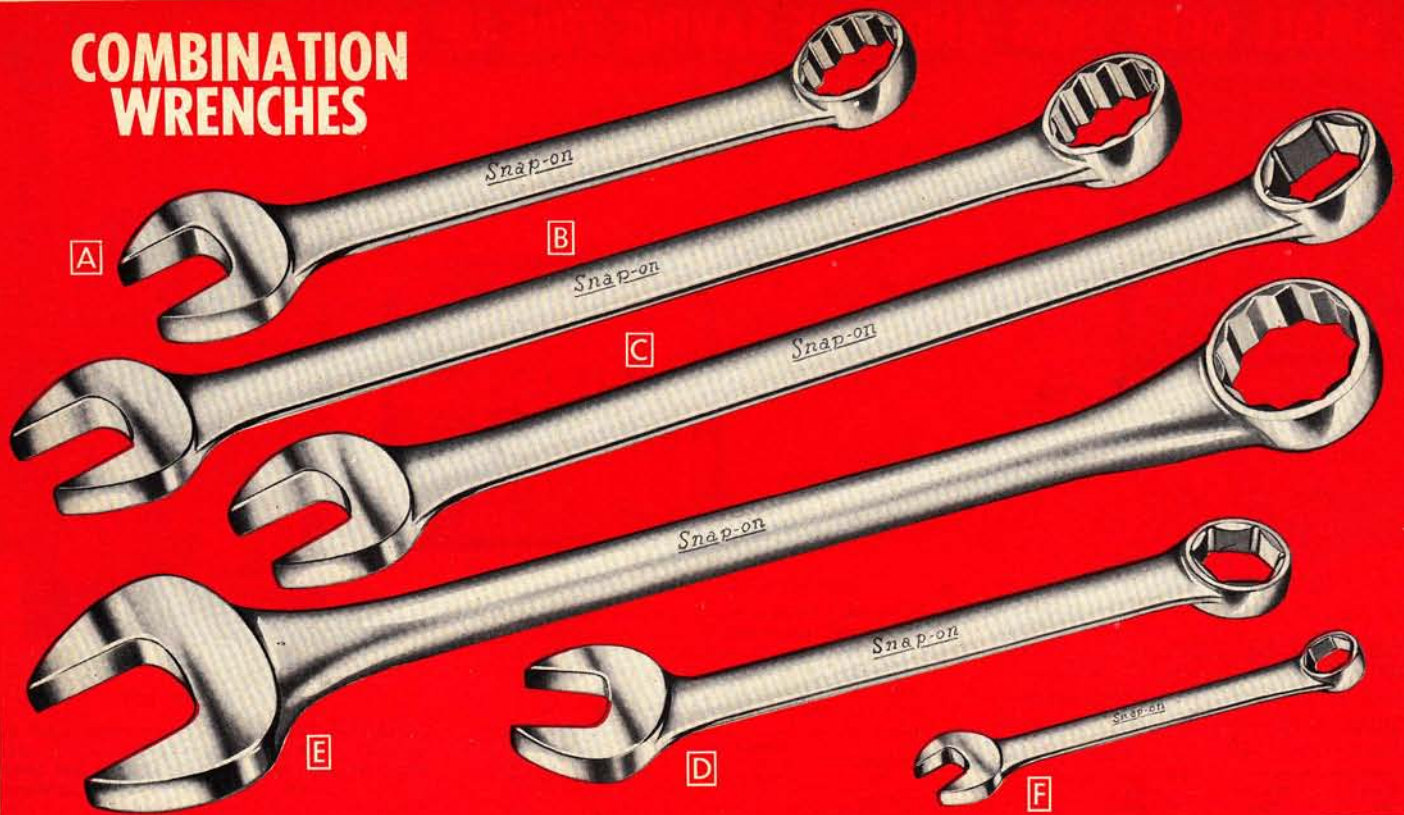
No.	Size	Cap.	Head Thick.
▲ D-74	4"	$\frac{1}{2}$ "	$\frac{5}{16}$ "
▲ D-76	6"	$\frac{3}{4}$ "	$\frac{13}{32}$ "
▲ D-78	8"	$\frac{15}{16}$ "	$\frac{15}{32}$ "
▲ D-710	10"	$1\frac{1}{8}$ "	$\frac{9}{16}$ "
▲ D-712	12"	$1\frac{1}{16}$ "	$\frac{3}{4}$ "
▲ D-715	15"	$1\frac{11}{16}$ "	$\frac{11}{32}$ "
▲ D-718	18"	$2\frac{1}{16}$ "	$\frac{13}{16}$ "
▲ D-724	24"	$2\frac{1}{2}$ "	$\frac{17}{16}$ "

D-903 Set. Three wrenches, Nos. D-76, D-78 and D-710.

D-906 Set. Contains six wrenches, Nos. D-74, D-76, D-78, D-710, D-712 and D-715.

Federal Specs: GGG-W-636D applies to Tappet Wrenches and open ends. GGG-W-631A applies to Adjustable Wrenches.

COMBINATION WRENCHES



DOUBLE HEX

▲ (A) SHORT HANDLE SERIES "FLANK DRIVE"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
1/4"	OEX-80	25/64"	17/32"	4 1/2"
9/32"	OEX-90	27/64"	19/32"	4 3/4"
5/16"	OEX-100	15/32"	11/16"	4 7/8"
11/32"	OEX-110	17/32"	23/32"	5 1/8"
3/8"	OEX-120	17/32"	13/16"	5 1/2"
7/16"	OEX-140	5/8"	15/16"	5 1/2"
1/2"	OEX-160	11/16"	1 1/16"	5 3/4"
9/16"	OEX-180	13/16"	1 1/16"	6"
5/8"	OEX-200	7/8"	1 9/32"	6 5/16"
11/16"	OEX-220	31/32"	1 13/32"	6 19/32"
3/4"	OEX-240	1 1/16"	1 1/2"	6 7/8"

DOUBLE HEX

▲ (B) LONG HANDLE SERIES "FLANK DRIVE"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
5/16"	OEX-10	15/32"	21/32"	6"
3/8"	OEX-12	19/32"	25/32"	6 9/16"
7/16"	OEX-14	21/32"	29/32"	7 3/32"
1/2"	OEX-16	3/4"	1 1/16"	7 21/32"
9/16"	OEX-18	27/32"	13/16"	8 5/16"
5/8"	OEX-20	15/16"	15/16"	8 13/16"
11/16"	OEX-22	1"	1 1/16"	9 1/4"
3/4"	OEX-24	13/32"	1 1/16"	9 3/4"
13/16"	OEX-26	1 1/16"	1 11/16"	11"
7/8"	OEX-28	1 9/32"	1 13/16"	11 7/8"
15/16"	OEX-30	1 11/32"	1 19/16"	13"
1"	OEX-32	1 7/16"	2 1/16"	14"
1 1/16"	OEX-34	1 9/16"	2 3/16"	15"
1 1/8"	OEX-36	1 12/16"	2 5/16"	15 7/8"
1 1/16"	OEX-38	1 3/4"	2 13/32"	15 1/2"
1 1/4"	OEX-40	1 127/32"	2 29/16"	17"
1 1/16"	OEX-42	1 29/32"	2 11/16"	18"
1 3/8"	*OEX-44	2"	2 19/16"	19"
1 7/16"	*OEX-46	2 1/16"	2 25/16"	20 1/16"
1 1/2"	*OEX-48	2 25/32"	3 1/16"	21 1/16"
1 5/8"	*OEX-52	2 5/16"	3 5/16"	22 7/8"

* Regular double-hex — not "Flank-Drive."

When you get into tight spots . . .

TWO HEADS ARE BETTER THAN ONE

. . . and the best heads are SNAP-ON. You just can't beat the speed and convenience of SNAP-ON Combination Wrenches. With 15-degree angle open-ends and 15-degree offset box-ends, you get a wide range of positions with two types of wrench heads on each tool. No need to grope around and switch wrenches right in the middle of a job.

NOW: "Flank Drive" Boxocket openings. All sizes up to 1 5/16" single or double hex have the new SNAP-ON "Flank Drive" design. See the full story of this important wrench development on page 6.

Chamfered Boxocket openings are clean broached and carefully centered, open ends have rounded bottoms, features that give added strength. All are chrome plated and polished.

SINGLE HEX

▲ (C) LONG HANDLE SERIES "FLANK DRIVE"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
5/16"	OSH-10	15/32"	21/32"	5 7/8"
11/32"	OSH-11	17/32"	23/32"	6 1/4"
3/8"	OSH-12	19/32"	25/32"	6 9/16"
7/16"	OSH-14	21/32"	29/32"	7 3/32"
1/2"	OSH-16	3/4"	1 1/16"	7 21/32"
9/16"	OSH-18	27/32"	13/16"	8 5/16"
5/8"	OSH-20	15/16"	15/16"	8 13/16"
11/16"	OSH-22	1"	1 1/16"	9 1/4"
3/4"	OSH-24	13/32"	1 1/16"	9 3/4"

▲ (D) OFFSET COMBINATIONS "FLANK DRIVE"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
1/4"	OXA-80	25/64"	17/32"	4 3/8"
5/16"	OXA-100	15/32"	11/16"	5"
3/8"	OXA-120	17/32"	13/16"	5 7/32"
7/16"	OXA-140	5/8"	1 9/16"	5 1/16"
1/2"	OXA-160	1 1/16"	1 1/16"	5 3/4"
9/16"	OXA-180	13/16"	1 1/16"	6"
5/8"	OXA-200	7/8"	1 9/32"	6 5/16"

DOUBLE HEX

▲ (E) LARGE SIZE COMBINATIONS Std. Broaching, Not "Flank-Drive"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
1 1/16"	OEX-54	2 1/2"	3 3/8"	24 3/8"
1 3/4"	OEX-56	2 9/16"	3 3/8"	25 3/4"
1 13/16"	OEX-58	2 11/16"	3 3/8"	27 1/4"
1 7/8"	OEX-60	2 13/16"	4"	28 1/2"
2"	OEX-64	2 15/16"	4"	29 3/8"

SINGLE HEX

▲ (F) MIDGET SERIES "FLANK DRIVE"

Wrench Size	Stock No.	Head Diameter		Overall Length
		Box End	Open End	
1/8"	OXI-4	7/32"	9/32"	2 63/64"
5/32"	OXI-5	17/64"	5/16"	3"
3/16"	OXI-6	19/64"	3/8"	3 1/32"
7/32"	OXI-7	11/32"	7/16"	3 3/64"
1/4"	OXI-8	3/8"	17/32"	3 1/16"
9/32"	OXI-9	27/64"	19/32"	3 9/32"
5/16"	OXI-10	29/64"	21/32"	3 15/32"
11/32"	OXI-11	1/2"	23/32"	3 11/16"
3/8"	OXI-12	17/32"	3/4"	3 7/8"

See pages 56-57 for Metric & British sizes of Combination Wrenches

▲ Federal Specs: GGG-W-636D applies to all units on this page indicated by symbol ▲.



FOR METRIC AND BRITISH STANDARD
WRENCHES AND TOOL SETS SEE PAGES
52-53-54-55-56-57-58.



Check

THESE

Snap-on

**COMBINATION
WRENCH**

Features:

Thin Heads get in close places
Narrow Jaws work between
obstructions

Double Hex "Boxockets" work
with 30° swing

New Flank Drive "Boxocket"
heads put more power in
your hands, see page 5

"Boxocket" 15° offset from
handle to clear obstructions

Open End at 15° angle from
handle

Tough and strong for long wear

Light Weight and Balanced
Design makes them "feel"
good

Comfortable Grip Handles — no
sharp edges

Fine Alloy High Carbon Steel
Expertly Heat Treated and
Hardened

OWN A COMPLETE SET OF **Snap-on** COMBINATION WRENCHES

So many jobs require more than one wrench at a time that you will find it convenient to own a complete set as illustrated and listed here. These sets have been made up of the most popular sizes used, a set to meet every job and every pocket book. The tough, durable red vinyl plastic cases or kit bags help keep tools clean and protect them. They show too, at a glance if any one is missing and in that way save you from losing tools.

LONG HANDLE DOUBLE HEX COMBINATION WRENCH SETS

OEX-707 Set. In plastic tray.

A OEX-709-K Set. In C-93D Kit Bag.

OEX-709 Set. Tools only.

B OEX-711-K Set. In C-114B Kit Bag.

OEX-711 Set. Tools only.

C OEX-714-K Set. In C-141B Kit Bag.

OEX-714 Set. Tools only.

D OEX-719-K Set. In C-190B Kit Bag.

OEX-719 Set. Tools only.

LONG HANDLE SINGLE HEX COMBINATION WRENCH SET

OSH-709-K Set. (Not illustrated) Contains nine wrenches, OSH-10, 11, 12, 14, 16, 18, 20, 22 and 24 (listed on opposite page) in C-93D Kit Bag.

OSH-709 Set. Above set, tools only.

OSH-707 Set. (Not shown) Contains seven wrenches, OSH-12, 14, 16, 18, 20, 22, 24 in plastic tray.

SHORT HANDLE SETS

E OEXS-709-K Combination Wrench Set. Contains one each of OEX-100, 110, 120, 140, 160, 180, 200, 220 and 240 (listed on opposite page), in C-94 red vinyl fabric kit bag.

OEXS-709 Set. Above Set, tools only.

MIDGET SETS

F OXI-705-K Midget Combination Wrench Set. Contains one each of OXI-8, 9, 10, 11 and 12 in C-52D pocket kit bag.

OXI-705 Set. Above Set, tools only.

OXI-709-K Midget Combination Wrench Set. (Not illustrated) Contains one each of OXI-4, 5, 6, 7, 8, 9, 10, 11 and 12, in C-90 kit bag.

OXI-709 Set. Above Set, tools only.

OFFSET WRENCH SET

G OXA-706-K Offset Combination Wrench Set. Contains one each of OXA-100, 120, 140, 160, 180 and 200 (listed opposite page), in C-60D pocket kit bag.

OXA-706 Set. Above Set, tools only

CONTENTS OF ABOVE SETS

Wrench Stock No.	COMBINATION WRENCH SET NUMBERS				
	OEX-707	A OEX-709	B OEX-711	C OEX-714	D OEX-719
OEX-12	X	X	X	X	X
OEX-14	X	X	X	X	X
OEX-16	X	X	X	X	X
OEX-18	X	X	X	X	X
OEX-20	X	X	X	X	X
OEX-22	X	X	X	X	X
OEX-24	X	X	X	X	X
OEX-26	....	X	X	X	X
OEX-28	....	X	X	X	X
OEX-30	....	....	X	X	X
OEX-32	....	....	X	X	X
OEX-34	....	....	....	X	X
OEX-36	....	....	....	X	X
OEX-40	....	....	....	X	X
OEX-42	....	....	....	....	X
OEX-44	....	....	....	....	X
OEX-46	....	....	....	....	X
OEX-48	....	....	....	....	X
OEX-52	....	....	....	....	X
Kit Bag	....	C-93D	C-114B	C-141B	C-190B

Snap-on OPEN END WRENCHES

EACH WRENCH HAS TWO SIZES



WRENCH OPENINGS SET AT A 15° ANGLE HELP YOU WORK FASTER AND EASIER IN CLOSE QUARTERS

UNEQUALLED FOR STRENGTH, TOUGHNESS AND FATIGUE RESISTANCE

SPECIFICATIONS of the Individual Wrenches that you can buy separately or in Sets.

These Superior Qualities Make SNAP-ON

Open End Wrenches Your Very Best Buy

- THIN HEADS • NARROW JAWS • GREAT STRENGTH
- LIGHT WEIGHT • BALANCED DESIGN • COMFORTABLE GRIP
- BROACHED OPENINGS • FINE ALLOY, HIGH CARBON STEEL

Without question, these SNAP-ON Open End Wrenches are designed and made to give you very fine tools of this type. Check these superb features that make them so popular:

Great Strength. Forged from high quality alloy high carbon steel with selectivity controlled heat treating and tempering.

Thin Heads — Narrow Jaws. Pear-shaped design reaches into close quarters, yet they have plenty of "beef" to loosen or tighten the toughest nut or bolt.

Precision Broaching. Smooth wrench openings have close, accurate fit on nut or bolt to prevent slipping — assure positive "pull." Openings have rounded bottoms to add strength to the jaw base.

Powerful Handles. Are just the right length for best leverage. They are properly balanced and have the "feel" you want. Recessed design gives sure finger grip. Rounded edges are easy on your hand.

Light Weight. With all their power and toughness, these SNAP-ON Open Ends are surprisingly light in weight. This means easier work and less fatigue.

Chrome Plated and Polished. To give an easily cleaned and beautiful rust-proof finish for years to come.

Long Life. High carbon alloy steel, the correct design in head and handle, and precision machining and heat treating result in long, trouble-free, dependable service.

The results of these superb features pay big tool dividends for you. You do your work faster since these wrenches are made the way the experienced mechanic wants them made. You do better work because they are precision broached.

They fit the nut just right without binding or looseness and help prevent marring the nut or fitting. Proper fit helps avoid slippage and contributes to safe working conditions.

Rid your tool kit of worn out, time taking and unsafe tools and put one of these fine sets of SNAP-ON Open Ends to work for you.

COMPLETE SETS

A VSO-806A-K Set. Complete in C-68D Kit Bag.

VSO-806A Set, tools only.

B VSO-808-K Set. Complete in C-87 Kit Bag.

VSO-808 Set, tools only.

C VSO-811-K Set. Complete in C-116B Kit Bag.

VSO-811 Set, tools only.

D VSO-815-K Set. Complete in C-150B Kit Bag.

VSO-815 Set, tools only.

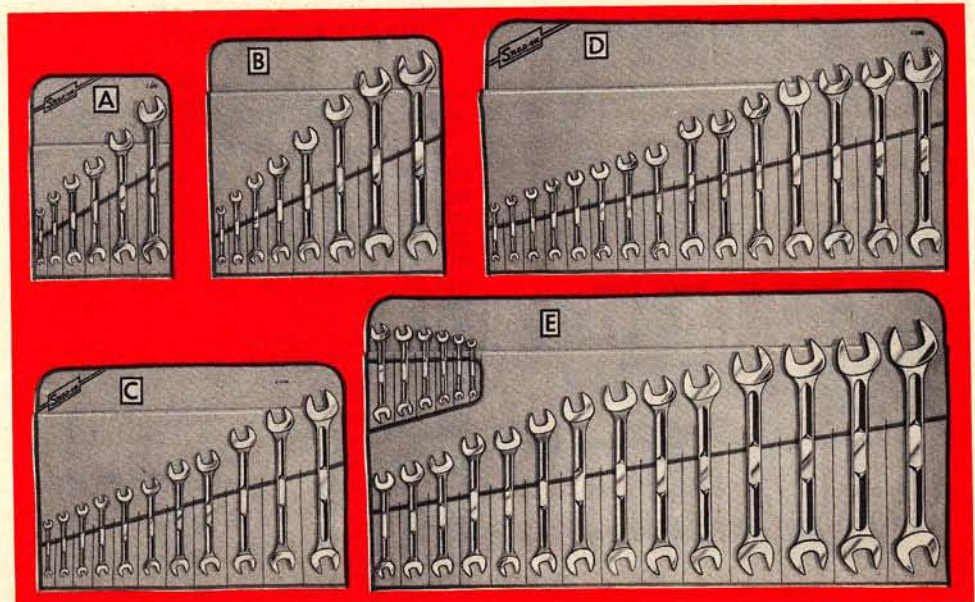
E VSO-820-K Set. Complete in C-200 Kit Bag.

VSO-820 Set, tools only.

CONTENTS of the five SNAP-ON Open End Wrench Sets shown at the right.

Wrench Stock Nos.	OPEN END WRENCH SET NUMBERS				
	A VSO-806	B VSO-808	C VSO-811	D VSO-815	E VSO-820
VS-810	X	X	X	X	X
VS-1012			X	X	X
VS-1214	X	X	X	X	X
VS-1416			X	X	X
VS-1618	X	X	X	X	X
VS-1820			X	X	X
VS-1922				X	X
VS-2022	X	X			
VS-2024			X	X	X
VS-2224					
VS-2226			X		X
VS-2426	X	X			
VS-2428			X	X	X
VS-2526				X	X
VS-2628					
VS-2830	X	X	X	X	X
VS-3032			X	X	X
VS-3236		X		X	X
VS-3436				X	X
VS-3440		X		X	X
VS-3842					X
VS-4044					X
VS-4448					X
VS-4652					X
Kit Bag	C-68D	C-87	C-116B	C-150B	C-200

Metric sizes are listed on page 56
British sizes are listed on page 57



Snap-on ANGLE-HEAD OPEN END WRENCHES

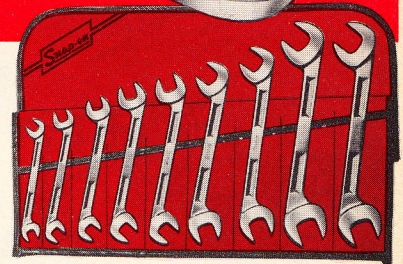


**EACH WRENCH HAS ONE SIZE
SET AT 30 AND 60 DEGREE ANGLES**

The 30° and 60° head arrangement gives you four usable wrench positions and makes it possible for you to turn nuts which are located in narrow swing areas where standard open ends or other type wrenches just won't work. Add these tools

to your kit and you eliminate all your turning troubles on those hard-to-reach nuts in the 3/8" to 1 1/2" size range.

Other features include well rounded handle edges that are comfortable in the hand . . . pear-shaped, thin jaws, which contribute to close quarter operation . . . draw-broached openings which give you accurate, close fitting wrenches. Polished, chrome plated finish with bright finish recesses in the handles. Forged from fine alloy steel heat treated under controlled conditions to assure toughness and hardness.



VS-809-K Set. Consists of nine wrenches, VS-5212 through VS-5228 listed at left complete in C-92D vinyl-fabric kit bag.

VS-809 Set. Above set, tools only.

VS-807 Set. Seven wrenches in a plastic tray. Includes VS-5212 thru VS-5224, 3/8" to 3/4".

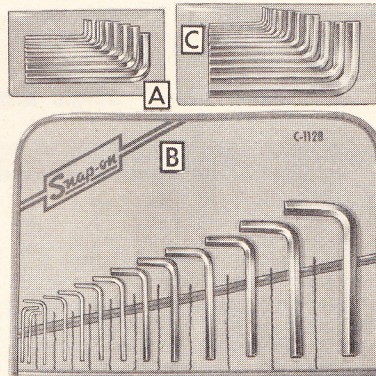
Stock No.	Wrench Size	Head Thickness	Overall Length	Stock No.	Wrench Size	Head Thickness	Overall Length
▲VS-5212	3/8"	3/16"	5 1/16"	VS-5230	1 5/16"	3/8"	9 1/4"
▲VS-5214	7/16"	7/32"	5 1/2"	VS-5232	1"	13/32"	9 7/8"
▲VS-5216	1/2"	7/32"	6 1/32"	VS-5234	1 1/16"	13/32"	10 3/8"
▲VS-5218	9/16"	1/4"	6 1/2"	VS-5236	1 1/8"	7/16"	11 11/32"
▲VS-5220	5/8"	1/4"	7"	VS-5240	1 1/4"	15/32"	12 1/4"
▲VS-5222	11/16"	9/32"	7 1/2"	VS-5242	1 5/16"	15/32"	12 23/32"
▲VS-5224	3/4"	5/16"	8"	VS-5244	1 3/8"	1 1/2"	13 1/16"
VS-5226	13/16"	11/32"	8 1/2"	VS-5246	1 7/16"	17/32"	13 31/32"
VS-5228	7/8"	3/8"	9 1/4"	VS-5248	1 1/2"	17/32"	13 31/32"

HEX HEAD AND MULTI-SPLINE WRENCHES IN HANDY SETS

▲ HEX HEAD WRENCHES

Standard

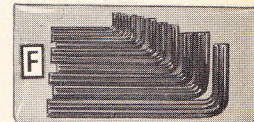
Stock No.	Size
AW-028	.028"
AW-035	.035"
AW-050	3/64"
AW-2	1/16"
AW-2 1/2	5/64"
AW-3	3/32"
AW-3 1/2	7/64"
AW-4	1/8"
AW-4 1/2	9/64"
AW-5	5/32"
AW-6	3/16"
AW-7	7/32"
AW-8	1/4"
AW-10	5/16"
AW-12	3/8"
AW-14	7/16"
AW-16	1/2"
AW-18	5/8"
AW-20	3/4"
AW-24	3/4"



Socket-type Hex Head Wrenches are listed on pages 31, 37, 41, 47, 53.

Metric sizes of Hex Head Wrenches are listed on pages 53-54.

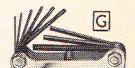
▲ MULTI-SPLINE



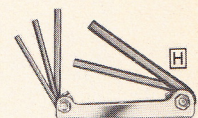
F MS-1012KA Set. 12 Multi-Spline wrenches. All sizes listed except MS-2, MS-3 and MS-7, in C-16 red vinyl kit bag with transparent front.

MS-1012 Set. Same as above but without kit bag.

HEX KEY SETS



G AW-9K Hex Key Set. 9 hex head wrench sizes .050", 1/16", 5/64", 3/32", 7/64", 1/8", 5/64", 3/16", and 1/4" fitted into a knife-type handle.



H AW-5K Hex Key Set. An ideal companion for the AW-9K set above in that it contains wrenches of larger sizes: 3/16", 7/32", 1/4", 5/16", and 3/8" — five in all that may be removed from chrome finished holder if desired. Tool closed is 5 1/2" long, blades have black finish. Folds up like a handy jack knife.

A AW-1013AK Set. 13 Standard hex head wrenches. AW-028 through AW-8 in C-10C kit bag with grip fastener.

B AW-1013K Set. 13 Standard hex head wrenches, AW-050 through AW-12 in C-112B red vinyl-fabric bag.

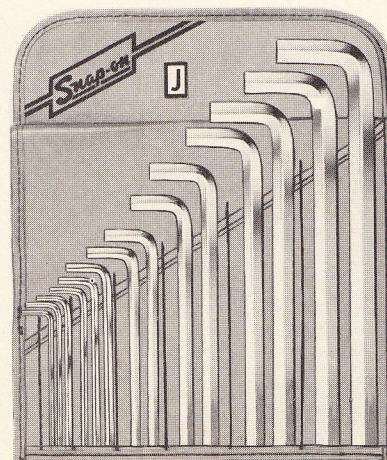
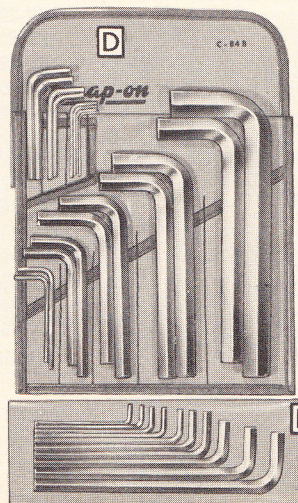
C AW-1015KC Set. 15 Standard hex head wrenches. AW-028 through AW-12 in C-20A transparent plastic kit bag with grip fastener.

D AW-1020K Set. 20 Standard hex head wrenches, AW-028 through AW-24 in C-84B red vinyl-fabric kit. **AW-1020 Set.** Above set, tools only.

E AWL-1010K Set. 10 Long hex head wrenches, AWL-3 through AWL-12 in C-15B kit bag.

J AWL-1014-K Set. 14 long hex head wrenches, AWL-3 through AWL-20 in C-67 red vinyl-fabric kit bag.

AWL-1014 Set. Above set, tools only.



▲ Federal Specs: GGG-W-00652A applies to Hex Head and Multi-Spline wrenches above. GGG-W-636d applies to the Angle-Head Wrenches above indicated by the symbol ▲

GRAB A MITTFUL OF SAFETY

"FLANK DRIVE" DOUBLE OFFSET "BOXOCKETS"



See pages 56-57
for Metric and
British sizes.

**Powerful Leverage . . . Strength . . . Balanced Design . . .
Safety . . . Speed . . . Convenience**

The revolutionary SNAP-ON "Flank Drive" wrench design gives you longer tool life, speeds repair jobs and protects nut and bolt heads . . . because it applies pressure on the side or flank of the nut or bolt instead of at the corner. See the story on page 6.

1. Deeply offset heads are placed at a slight angle to the handle—this gives you clearance to reach recessed nuts, cylinder head bolts, etc.—also gives knuckle saving clearance over obstructions.
2. The "box" or "ring-type" opening gives you the strongest, safest type of wrench you can use. The opening cannot spread, and the twisting leverage is applied equally to all corners of the unit.
3. Double hex openings are machined to strict tolerances to fit nuts and bolts snugly—take a new grip with only a 30° handle swing.

4. Thin side walls permit wrench heads to work in very tight places.
5. Chamfered openings help guide the wrench onto the nut or bolt head.
6. There are two different wrench openings on each handle.
7. Handles are flat with rounded edges to give a firm, comfortable grip.
8. Long handles provide ample direct-line leverage for breaking tough nuts loose or pulling them tight.
9. Complete size range from 3/8" to 1 1/2".
10. SNAP-ON "Boxockets" are hammer forged from high grade steel, heat treated to exacting standards of toughness and hardness for long, dependable service under constant use.
11. They are beauties, too, with a full polished chrome finish set off by the bright-finish recesses in the handles.

"FLANK DRIVE" Double Hex Offset "Boxockets"

Wrench Size in Inches	Stock No.	Dia. of Heads in Inches	Overall Length
3/8 & 7/16	XV-1214	9/16 & 41/64	7 19/32"
7/16 & 1/2	XV-1416	41/64 & 47/64	8 9/16"
1/2 & 9/16	XV-1618	47/64 & 13/16	8 25/32"
9/16 & 5/8	XV-1820	13/16 & 29/32	9 23/64"
19/32 & 11/16	XV-1922	55/64 & 1	9 15/16"
5/8 & 11/16	XV-2022	29/32 & 1	9 15/16"
5/8 & 3/4	XV-2024	29/32 & 1 5/64	10"
11/16 & 13/16	XV-2226	59/64 & 1 11/64	10 1/2"
3/4 & 7/8	XV-2428	1 5/64 & 1 1/4	11"
29/32 & 13/16	XV-2526	1 1/8 & 1 5/64	11"
13/16 & 7/8	XV-2628	1 5/32 & 1 1/4	11 31/32"
7/8 & 15/16	XV-2830	1 1/4 & 1 11/32	13"
15/16 & 1	XV-3032	1 11/32 & 1 1/16	14"
15/16 & 1 1/16	XV-3034	1 11/32 & 1 17/32	14"
1 & 1 1/8	XV-3236	1 7/16 & 1 39/64	15"
1 1/16 & 1 1/8	XV-3436	1 33/64 & 1 39/64	15"
1 1/16 & 1 1/4	XV-3440	1 33/64 & 1 25/32	16"
1 3/16 & 1 5/16	XV-3842	1 43/64 & 1 7/8	17"
1 1/4 & 1 3/8	*XV-4044	1 25/32 & 1 31/32	18"
1 3/8 & 1 1/2	*XV-4448	1 31/32 & 2 5/64	19"
1 7/16 & 1 5/8	*XV-4652	2 5/64 & 2 5/16	21"

* Has standard double hex openings.

"FLANK DRIVE" Single Hex "Boxockets"

Wrench Size in Inches	Stock No.	Dia. of Heads in Inches	Overall Length
3/8 & 7/16	XV-1214S	9/16 & 41/64	7 19/32"
7/16 & 1/2	XV-1416S	41/64 & 47/64	8 9/16"
1/2 & 9/16	XV-1618S	47/64 & 13/16	8 25/32"
9/16 & 5/8	XV-1820S	13/16 & 29/32	9 23/64"

"Flank Drive" Single Broached Offset "Boxockets"



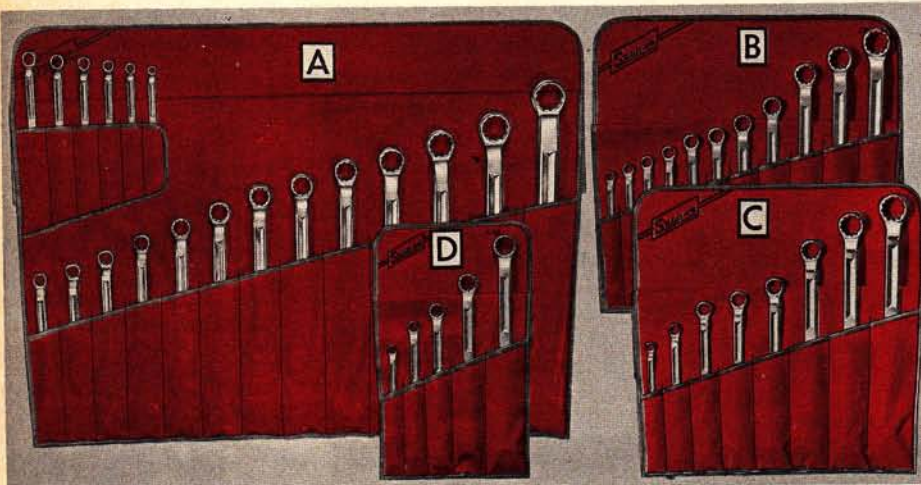
Because these single hex "Boxockets" take a larger grip on all six sides of the nut than do double hex "Boxockets" they are extremely useful for turning nuts and bolts which are undersized, or are rusted on, or have badly chewed up corners. They are also good for turning Parker-Kalon or other self tapping screws.

XV-604S Single Hex Set. Consists of the four off-set "Boxockets" listed at left: XV-1214S to XV-1820S. Get the entire set so that you are ready for those tough jobs.

CONTENTS OF DOUBLE HEX SETS

Wrench Stock Number	SET NUMBERS INCLUDE KIT BAG			
	XV-619-K	XV-611-K	XV-608-K	XV-605-K
XV-1214	X	X	X	X
XV-1416	X	X	....	....
XV-1618	X	X	X	X
XV-1820	X	X	....	....
XV-1922	X	X	X	....
XV-2022	X	....	....	X
XV-2024	X	X	X	....
XV-2226	X	....	....	....
XV-2428	X	X	....	X
XV-2526	X	X	X	....
XV-2628	....	....	....	....
XV-2830	X	....	X	....
XV-3032	X	X	....	X
XV-3034	....	....	....	....
XV-3236	X	X	X	....
XV-3436	X	....	....	....
XV-3440	X	X	X	....
XV-3842	X	....	....	....
XV-4044	X	....	....	....
XV-4448	X	....	....	....
XV-4652	X	....	....	....
Kit Bag	C-190B	C-113B	C-83B	C-53B

XV-605 Set. Above XV-605-K but tools only.
XV-608 Set. Above XV-608-K but tools only.
XV-611 Set. Above XV-611-K but tools only.
XV-619 Set. Above XV-619-K but tools only.



DWARF AND MIDGET "FLANK DRIVE" DOUBLE OFFSET "BOXOCKETS"



- Strong, Short Handles
- Ample Leverage
- Chamfered Openings
- Accurate Broaching

"FLANK-DRIVE"

▲ A DEEP OFFSET — DOUBLE HEX

For those deep recessed nuts and bolts these Double Hex Offsets are the answer. They reach deep in to clear obstructions. The deep offsets also give greater knuckle clearance.

Wrench Size	Stock No.	Diameters of Heads	Overall Length
1/4" & 9/32"	XSO-89	25/64" & 7/16"	3 3/8"
1/4" & 5/16"	XSO-810S	3/8" & 29/64"	4 1/4"
1/4" & 5/16"	XSO-810	3/8" & 29/64"	4 5/32"
5/16" & 3/8"	XSO-1012	29/64" & 17/32"	4 31/64"
3/8" & 7/16"	XSO-1214	17/32" & 3/8"	4 53/64"
7/16" & 1/2"	XSO-1416	3/8" & 45/64"	5 5/32"
1/2" & 9/16"	XSO-1618	45/64" & 51/64"	5 1/2"
9/16" & 5/8"	XSO-1820	51/64" & 7/8"	5 7/32"
5/8" & 3/4"	XSO-2024	7/8" & 13/16"	6 29/64"
11/16" & 13/16"	XSO-2226	31/32" & 1 1/8"	7 5/64"

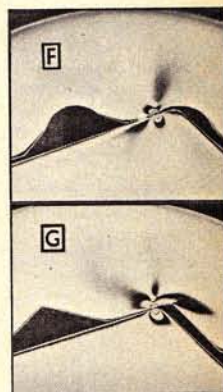
* This wrench has single hex openings.

"FLANK-DRIVE" — THE BEST WRENCH IDEA IN YEARS

F New SNAP-ON "Flank Drive" opening contacts the side or flank of the nut or bolt head, away from the corner, for better turning, wider stress distribution, less wear on fastener.

These wrenches are forged from high quality alloy steel, heat treated to give toughness and hardness. Full polished chrome finish.

G Conventional double hex wrench opening contacts the corner of the nut resulting in greater stress on both fastener and wrench and greater possibility of fastener wear and wrench slippage.



"FLANK-DRIVE"

▲ B DOUBLE HEX TYPE

Work with only 30° handle movement.

Wrench Size	Stock No.	Diameters of Heads	Overall Length
3/16" & 7/32"	XS-67	19/64" & 11/32"	3 3/8"
1/4" & 5/16"	XS-810	25/64" & 29/64"	4 1/4"
5/16" & 3/8"	XS-1012	29/64" & 9/16"	4 1/2"
3/8" & 7/16"	XS-1214	17/32" & 3/8"	4 13/16"
7/16" & 1/2"	XS-1416	21/32" & 23/32"	5 1/4"
1/2" & 9/16"	XS-1618	23/32" & 13/16"	5 1/2"
9/16" & 5/8"	XS-1820	51/64" & 7/8"	5 13/16"
5/8" & 3/4"	XS-2024	7/8" & 13/16"	6 3/16"
11/16" & 13/16"	XS-2226	31/32" & 1 1/64"	6 1/2"

"FLANK-DRIVE"

▲ C SINGLE HEX TYPE

These single hex wrenches are preferred for turning worn or undersized nuts and bolts. Work with a 60° handle movement.

Wrench Size	Stock No.	Diameters of Heads	Overall Length
3/16" & 7/32"	XS-67S	19/64" & 11/32"	3 3/8"
1/4" & 5/16"	XS-810S	25/64" & 29/64"	4 1/4"
5/16" & 3/8"	XS-1012S	29/64" & 9/16"	4 1/2"
3/8" & 7/16"	XS-1214S	17/32" & 3/8"	4 7/8"
7/16" & 1/2"	XS-1416S	21/32" & 23/32"	5 1/4"
1/2" & 9/16"	XS-1618S	23/32" & 13/16"	5 1/2"
9/16" & 5/8"	XS-1820S	51/64" & 7/8"	5 7/8"

▲ MIDGET OFFSET "BOXOCKETS" — "FLANK DRIVE"

D SINGLE HEX TYPE

Wrench Size	Stock No.	Diameters of Heads	Overall Length
7/64" & 1/8"	XI-78	7/32" & 15/64"	2 15/32"
5/32" & 3/16"	XI-1012	11/64" & 19/64"	2 21/32"
1/32" & 15/64"	XI-1415	11/32" & 23/64"	3 3/32"
1/4" & 9/32"	XI-1618	3/8" & 27/64"	3 3/8"
5/16" & 11/32"	XI-2022	15/32" & 31/64"	3 3/4"

E DOUBLE HEX TYPE

Wrench Size	Stock No.	Diameters of Heads	Overall Length
3/16" & 13/64"	XID-1213	19/64" & 21/64"	2 13/16"
1/32" & 15/64"	XID-1415	11/32" & 23/64"	3 3/32"
1/4" & 9/32"	XID-1618	3/8" & 27/64"	3 3/8"
5/16" & 11/32"	XID-2022	15/32" & 31/64"	3 3/4"

Time savers on ignition and carburetor work, aircraft and missiles, radio, television, etc., where tiny nuts must be turned. Ends are offset to clear small obstructions and openings are broached precisely. Forged from fine alloy steel, heat treated to assure durability. Polished chrome finish.

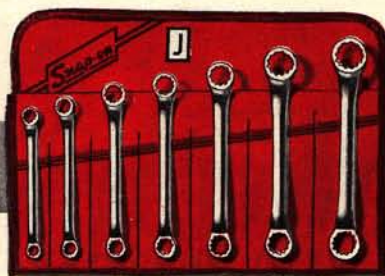


DEEP OFFSET SET

H XSO-608-K Dwarf Deep Offset, Double Hex Set. Contains eight "Boxockets" XSO-810 to XSO-2226 in C-86B vinyl-fabric kit bag.

XSO-608 Set. Above set, tools only.

See pages 56-57 for Metric and British Standard Wrenches.



STANDARD OFFSET SETS

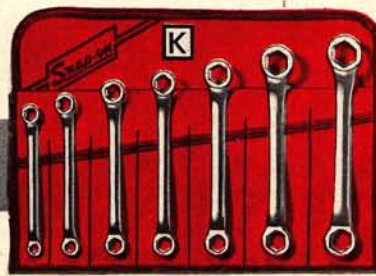
J XS-607-K Dwarf Double Hex Set. 7 wrenches XS-1012 to XS-2226 in C-74D kit bag.

XS-607 Set. Above set, tools only.

XS-606 Set. 6 wrenches XS-1214 to XS-2024.

K XS-607S-K Dwarf Single Hex Set. 7 wrenches XS-67S to XS-1820S in C-74D kit bag.

XS-607S Set. Above set, tools only.



MIDGET OFFSET SETS

L XI-604A-K Midget Single Hex Set. Four "Boxockets" XI-1012 to XI-2022, in C-41D kit bag.

XI-604A Set. Above set, tools only.

XID-605 Midget Double Hex Set. XI-78, XI-1012, XID-1415, XID-1618 and XID-2022.

M XID-604-K Midget Double Hex Set. Four "Boxockets" XID-1213 to XID-2022, in C-41D kit bag.

XID-604 Set. Above set, tools only.

FLANK DRIVE BOXOCKET WRENCHES



These "Flank Drive" Boxockets (Patent 3,273,430) were developed for use in turning the 12-point nuts, bolts and cap screws used throughout the aero-space, aircraft, automotive and other industries. At the same time their special broaching is equally advantageous for turning regular 6-point hex bolts and nuts. Here's why. Instead of applying pressure on the corner the "Flank Drive" wrench walls make contact on the side or "flank" of a nut or bolt. Result: more surface contact for better distribution of pressure, greater protection against rounding of the corners and wrench slippage.

The wrenches are forged from aircraft quality steel, heat treated to give greater strength and toughness at higher temperatures and contribute to increased transverse properties. They are much stronger than comparable ordinary wrenches and the Flank Drive opening permits 15 to 20 percent greater torque application without damage to the fastener. The 15° angle between the heads and the handle provides clearance over obstructions and for the user's fingers, yet provides direct pulling leverage. Chamfered openings help guide the wrench over the fastener. Smooth, round handle is easy to grasp. Chrome plated finish.

HEAVY DUTY "BOXOCKETS" AND OPEN END WRENCHES WITH TUBULAR HANDLES

Interchangeable straight "Boxockets," off-set "Boxockets" and Open Ends give you power and versatility to reach nuts with different clearance problems. Wrenches can be used to run nuts down quickly, and the handle slipped on for final tightening or to reach otherwise inaccessible nuts. Wrench shaft stop helps to align locking button with handle hole. Wrench and handle lock solidly—can't be separated accidentally—an important safety factor. "Boxocket" heads are strong, compact and require little clearance... double hex opening permits nut turning when handle movement is limited.

Open End heads are used where obstructions prevent entrance of a "Boxocket." The angled opening permits flopping the

wrench for a new grip in close places. Handles are made of high grade seamless steel tubing for safe powerful leverage.

A B STRAIGHT AND OFFSET "BOXOCKETS"

STRAIGHT TYPE		OFFSET TYPE		Assem. Length from Bolt Center	For Handle No.
Wrench Size	Stock No.	Stock No.	Height of Offset		
3/4"	XH-124A	—	—	18 3/4"	15A
13/16"	XH-126A	—	—	18 3/4"	15A
7/8"	XH-128A	—	—	18 3/4"	15A
15/16"	XH-130A	—	—	18 3/4"	15A
1"	XH-132A	—	—	18 3/4"	15A
1 1/16"	XH-134A	X-340A	1 5/16"	21 3/4"	18A
1 1/8"	XH-136A	X-360A	1"	21 3/4"	18A
1 1/4"	XH-140A	X-400A	1 1/16"	21 3/4"	18A
1 1/2"	XH-142A	X-420A	1 1/8"	29 1/2"	24A
1 3/8"	—	X-440A	1 3/16"	29 1/2"	24A
1 7/16"	XH-146A	X-460A	1 1/4"	29 1/2"	24A
1 1/2"	XH-148A	X-480A	1 5/16"	29 1/2"	24A
1 9/16"	—	X-500A	1 5/16"	29 1/2"	24A
1 5/8"	XH-152A	X-520A	1 3/8"	29 1/2"	24A

STRAIGHT TYPE		OFFSET TYPE		Assem. Length from Bolt Center	For Handle No.
Wrench Size	Stock No.	Stock No.	Height of Offset		
1 11/16"	XH-154A	X-540A	1 1/16"	35 3/4"	30A
1 3/4"	XH-156A	X-560A	1 1/2"	35 3/4"	30A
1 13/16"	XH-158A	X-580A	1 9/16"	35 3/4"	30A
1 7/8"	XH-160A	X-600A	1 3/8"	35 3/4"	30A
2"	XH-164A	X-640A	1 3/4"	35 3/4"	30A
2 1/16"	XH-166A	X-660A	1 3/4"	35 3/4"	30A
2 1/8"	XH-170A	X-700A	1 7/8"	35 3/4"	30A
2 1/4"	XH-172A	X-720A	1 7/8"	42"	30A
2 3/8"	XH-176A	X-760A	2"	42"	36A
2 9/16"	XH-182A	X-820A	2 1/4"	42"	36A
2 5/8"	XH-184A	X-840A	2 1/4"	42"	36A
2 3/4"	XH-188A	X-880A	2 1/2"	42"	36A
2 11/16"	—	X-940A	2 5/8"	42"	36A
3 1/8"	XH-1100A	X-1000A	2 3/4"	42"	36A

CHAIN WRENCHES FOR GRIPPING ROUND OR IRREGULAR OBJECTS



A CW-12 Chain Wrench. 16 1/2" long chain provides a capacity of from 7/8" to 4" diameter. A 12" handle provides ample leverage for even the tough-to-turn jobs. The inside portion of the handle has deeply cut teeth which will bite into the object and provide a firm grip. The chain is detachable from the handle for easier installation on some turning jobs.

B CW-15 Chain Wrench. Has double lock to hold the chain. Chain is 19 1/2" long and provides a capacity of 1/4" to 5" diameter for gripping round or irregular shaped objects. Handle is 15" long.

C CW-24 Chain Wrench. The same double lock head as the CW-15 but with a 24" long handle and 23" chain.

FLANK DRIVE 15° ANGLE BOXOCKETS

Wrench Sizes	Stock No.	Head Depths	Head Diameters	Overall Length
7/32" & 1/4"	XDH-78	11/64" & 3/16"	11/32" & 13/32"	6 3/32"
1/4" & 5/16"	XDH-810A	3/16" & 7/32"	13/32" & 15/32"	7 1/4"
5/16" & 3/8"	XDH-1012A	7/32" & 5/16"	7/16" & 37/64"	7 7/8"
3/8" & 7/16"	XDH-1214	5/16" & 11/32"	37/64" & 21/32"	8 1/2"
7/16" & 1/2"	XDH-1416	11/32" & 11/32"	21/32" & 3/4"	8 7/8"
1/2" & 9/16"	XDH-1618	11/32" & 3/8"	3/4" & 53/64"	9 1/4"
9/16" & 5/8"	XDH-1820	3/8" & 7/16"	53/64" & 29/32"	9 5/8"
11/16" & 3/4"	XDH-2224	7/16" & 15/32"	1" & 15/64"	11 1/2"
25/32" & 13/16"	XDH-2526	1/2" & 1/2"	1 1/64" & 11 1/64"	11 7/8"
7/8" & 15/16"	XDH-2830	9/16" & 9/16"	1 1/4" & 11 1/32"	12 15/16"
15/16" & 1"	XDH-3032	5/8" & 5/8"	1 11/32" & 1 27/64"	13 15/16"

XDH-611-K Set. Contains one each of the above wrenches, in C-114B Vinyl-fabric kit bag.

XDH-611 Set. The above set without kit bag.

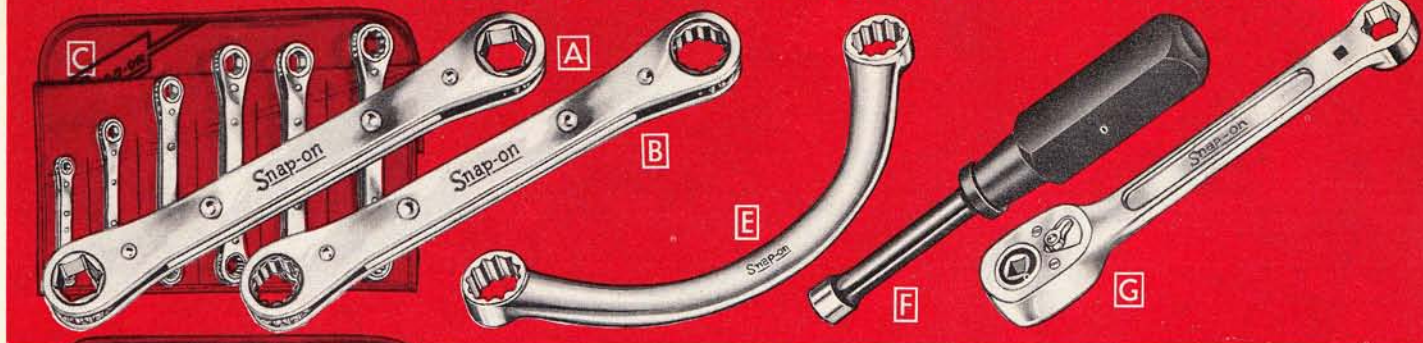
C OPEN END WRENCHES

Wrench Size	Stock No.	Head Depth	Head Diameter	Length With Handle	Fits Handle
7/8"	OE-128A	1/2"	1 15/16"	21 7/8"	15A
15/16"	OE-130A	1/2"	1 15/16"	21 7/8"	15A
1"	OE-132A	9/16"	2 5/16"	25 1/16"	18A
1 1/16"	OE-134A	9/16"	2 5/16"	25 1/16"	18A
1 1/8"	OE-136A	9/16"	2 5/16"	25 1/16"	18A
1 1/4"	OE-140A	5/8"	2 11/16"	26 3/8"	18A
1 1/2"	OE-142A	5/8"	2 11/16"	26 3/8"	18A
1 7/16"	OE-146A	11/16"	3 1/8"	31 5/8"	24A
1 1/2"	OE-148A	11/16"	3 1/8"	31 5/8"	24A

D TUBULAR HANDLES

No.	Length	O.D.	I.D.
15A	15"	1 3/16"	5/8"
18A	18"	7/8"	1 1/16"
24A	24"	1 1/16"	7/8"
30A	30"	1 5/16"	1"
36A	36"	1 7/16"	1 1/8"

BOXOCKETS — RATCHETING, HALF MOON, NUT DRIVER, AIR COND.



RATCHETING BOXOCKETS SPEED MANY JOBS

When working space is very limited and obstructions or long protruding bolts prevent the use of socket and ratchet handles, these Ratcheting Boxockets will prove to be the handiest time saving wrenches in your tool kit.

Sturdy, yet thin and flat, they reach into extremely close places. The ratchet action works very smoothly and gives a new bite with very small handle movement. The geared openings and the pawls have a black finish and the outside plates of the tool are chrome plated and polished to a high finish.

Both the single and double hex units have the SNAP-ON Flank Drive broaching. See page 6.

F NUT DRIVERS

Excellent for electrical work. Single hex "Flank Drive" openings provide a turning contact on the side of the nut and prevent damage to soft metal nuts. Thin walls get in close places. Metal shank has colored fire and shock resistant plastic cover. Handle is amber shock resistant plastic.

ND-1090 Nut Driver Set. Consists of one each of the nine nut drivers.

- ND-108 Driver** 1/4", Red cover.
- ND-109 Driver** 5/32", Orange cover.
- ND-110 Driver** 9/16", Yellow cover.
- ND-111 Driver** 11/32", Green cover.
- ND-112 Driver** 3/8", Blue cover.
- ND-114 Driver** 7/16", Brown cover.
- ND-116 Driver** 1/2", Red cover.
- ND-118 Driver** 9/16", Orange cover.
- ND-120 Driver** 5/8", Yellow cover.

"FLANK DRIVE" SERIES ▲ A SINGLE HEX SERIES

Wrench Size	Stock Number	Head Widths	Overall Length
1/4" & 5/16"	R-810S	9/16" & 5/8"	4 9/32"
3/8" & 7/16"	R-1214S	3/4" & 7/8"	5 1/2"
1/2" & 9/16"	R-1618S	15/16" & 1"	6 31/32"
5/8" & 11/16"	R-2022S	1 1/8" & 1 1/4"	7 15/16"
3/4" & 13/16"	R-2426S	1 3/8" & 1 1/2"	7 27/32"

▲ B DOUBLE HEX SERIES

Wrench Size	Stock Number	Head Widths	Overall Length
1/4" & 5/16"	R-810A	9/16" & 5/8"	4 9/32"
3/8" & 7/16"	R-1214A	3/4" & 7/8"	5 1/2"
1/2" & 9/16"	R-1618	15/16" & 1"	6 31/32"
5/8" & 11/16"	R-1820	1 1/8" & 1 1/4"	7 15/16"
3/4" & 13/16"	R-2022	1 1/8" & 1 1/4"	7 15/16"
5/8" & 11/16"	R-2024	1 1/8" & 1 1/4"	7 15/16"
3/4" & 13/16"	R-2426	1 3/8" & 1 1/2"	7 27/32"
5/8" & 11/16"	R-2428	1 3/8" & 1 1/2"	8 5/8"
3/4" & 13/16"	R-2830	1 1/2" & 1 1/2"	8 11/16"

C AIR CONDITIONER RATCHET

R-71 Air Conditioner Ratchet. Designed especially for automotive air conditioning service. The 9/16" single hex "Flank Drive" Boxocket end is just the right size and type for turning the compressor service valve cap. The 1/2" square ratcheting opening is needed to service the valves on vehicles that do not have the "Schroeder" type valves. Convenient lever reverses the action. Ratchet works with only a 20 degree handle movement.

Overall length is 6 1/2" — long enough for good leverage — short enough to be used in confined areas.

Add this ratchet to your tool kit and it will cut down working time on those air conditioning service jobs.

TWO POPULAR SETS

C RB-6065-K Ratcheting Boxocket Set. Consists of five single hex wrenches R-810S, R-1214S, R-1618S, R-2022S, R-2426S and double hex wrench R-2830, in a C-62B vinyl fabric kit bag. 12 wrench sizes 1/4" to 1 3/16".

RB-6065 Set. Above set, tools only.

D RB-606B-K Ratcheting Boxocket Set. Consists of six double hex wrenches, R-810A, R-1214A, R-1618, R-2022, R-2426 and R-2830, in C-62B vinyl fabric kit bag. 12 wrench sizes 1/4" to 1 3/16".

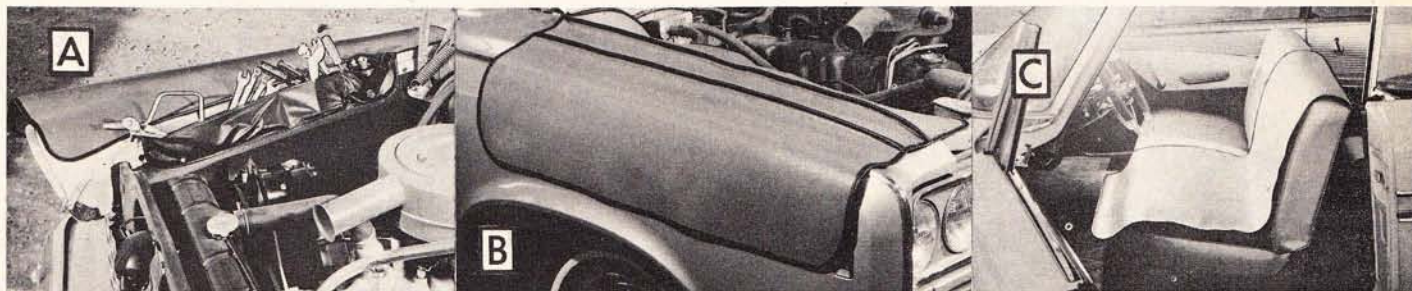
RB-606B Set. Above set, tools only.

E HALF MOON "BOXOCKETS" "FLANK DRIVE"

When you find it impossible to reach a nut or bolt with a socket or a straight-handle wrench these curved handle "Boxockets" solve your problem... they reach around obstructions to service those tough-to-get-at nuts and complete the job easily and quickly.

CX-605 Set. Contains all five Half Moon "Boxockets" at right.

Wrench Size	Stock No.	Handle Radius	Overall Length
7/16" & 1/2"	CX-1416	2 15/16"	5"
9/16" & 5/8"	CX-1820	2 9/16"	6 1/2"
5/8" & 3/4"	CX-2024	3 1/16"	7 3/4"
11/16" & 13/16"	CX-2226	3 1/2"	8 1/2"
3/4" & 13/16"	CX-2830	4 1/16"	10"



HIGHEST QUALITY FENDER AND SEAT COVERS

These covers are made from a rubberized fabric material that is impervious to oil, gasoline and similar solvents. It is also highly resistant to battery acids. This surface material is securely bonded to a non-slip rubber base and should not bubble or crack, even when folded. The soft rubber backing tends to cling to the car surfaces and provides excellent protection for the surface.

A CK-6A Fender Cover. Size 22" x 47" with a 3-section tool pocket 5" x 30". The pocket hangs down inside the fender and provides a convenient holder for small tools or parts.

B CK-7 Fender Cover. Size is 38" long, 25" wide. Raised ribbing along a center section provides useful tool holding space.

C CK-15A Seat Cover. 30" x 51". Big enough to cover both seat and backrest.

▲ Federal Specs: GGG-W-636d applies to Ratcheting Boxocket Wrenches.
GGG-W-641d applies to Nut Drivers.

TUBE CUTTING AND FLARING TOOLS



A TF-528-B Tube Cutting and Double Flaring Set. The tools included in this set were designed to handle a large assortment of tube cutting and flaring jobs. This versatile set combines our TC-28 Tubing Cutter that can cut brass, copper and similar tubing from $\frac{1}{8}$ " to 1" in diameter; and the units in our TF-5 Double Flaring Set that can make double or single flares on soft steel, copper brass or aluminum tubing with an outside diameter from $\frac{3}{16}$ " to $\frac{1}{2}$ ". The complete flaring tool group consists of a flaring bar, a rod handle, a yoke and five adaptors; $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ ". These tools are designed to give the proper cut and exact flare every time with comparative speed and ease.

The special metal box included in the set has been designed large enough to hold our TC-123 Midget Tubing Cutter and a variety of handles, flare nut wrenches, sockets for "Weatherhead" fittings, etc.

B TF-5 Double Flaring Tool Set makes double or single flares on soft steel, copper, brass or aluminum tubing from $\frac{3}{16}$ " to $\frac{1}{2}$ " O.D. The single flare is usually adequate on soft metal tubing but for thin steel tubing the double flare is necessary. Makes a smooth-fitting, crack-free, 45° flare every time of double the strength. Yoke is a steel forging. Set consists of 5 adaptors, yoke assembly, bar assembly and handle as illustrated in metal box, complete with instructions for fast, easy operation.

SPECIAL SOCKETS FOR SERVICING "WEATHERHEAD" FITTINGS

Fourteen sizes of special sockets are available to handle WEATHERHEAD fittings. The sockets range in size from $\frac{3}{8}$ " to $1\frac{1}{2}$ " and are specially designed to quickly and easily service these soft brass and aluminum fittings while preventing costly, time-consuming breakage. They are also good for holding and protecting the fittings while connecting or disconnecting the lines.

211-FDY $\frac{3}{8}$ " Square Drive Set. Consists of eleven sockets ranging in size from $\frac{3}{8}$ " to $2\frac{5}{32}$ ". The set includes one A-267 Mounting Bracket and eleven A-272B Socket Holders.

WH-280, WH-290, and WH-300 $\frac{1}{2}$ " square drive Sockets are particularly useful for servicing the larger weatherhead fittings such as those used on both air and hydraulic brake lines in trucks, buses, airplanes, off-the-road machinery, etc. Greater turning power is required on these fittings, and these units provide for this with their $\frac{1}{2}$ " square drive which accepts the larger "Master" handles.

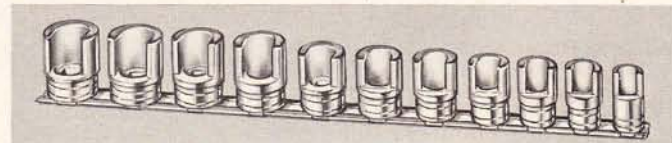
C TF-7A Flaring Tool for $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ " and $\frac{1}{2}$ " tubing — soft brass, copper or aluminum. Slip-on yoke offers exceptional ease and speed because it cannot twist or turn. Open bottom allows flares to be made where there is little clearance.

D TC-28 Tubing Cutter for brass, copper and similar tubing from $\frac{1}{8}$ " to 1" diameter. Cutting wheel on pivoted arm is fed into tubing when screw is turned, two rollers hold tube firmly. Arm retracts by spring. Burrs easily removed by retractable reamer blade. Cutter wheel held by screw.

TC-28-1 Extra Cutter Wheel

E TC-123 Compact Tubing Cutter. A small, precision-made tubing cutter for use in close working areas. Will handle tubing from $\frac{1}{8}$ " to $\frac{1}{2}$ " outside diameter. Can be used where clearance around tubing is less than $1\frac{1}{2}$ inches, often eliminates removing the tubing entirely. Total length: closed, $1\frac{1}{2}$ " — open, 2". Feed knob is 1" diameter.

TC-123-1 Extra Cutter Wheel



Size	Square Drive	Stock No.	Max. O.D.	Overall Length	Size	Square Drive	Stock No.	Max. O.D.	Overall Length
$\frac{3}{8}$ "	$\frac{3}{8}$ "	FD-120	$\frac{5}{8}$ "	$1\frac{1}{4}$ "	$2\frac{1}{32}$ "	$\frac{3}{8}$ "	FD-210	$1\frac{1}{16}$ "	$1\frac{3}{8}$ "
$\frac{7}{16}$ "	$\frac{3}{8}$ "	FD-140	$1\frac{1}{16}$ "	$1\frac{1}{4}$ "	$1\frac{1}{16}$ "	$\frac{3}{8}$ "	FD-220	$1\frac{1}{16}$ "	$1\frac{3}{8}$ "
$1\frac{1}{32}$ "	$\frac{3}{8}$ "	FD-150	$\frac{7}{8}$ "	$1\frac{1}{4}$ "	$\frac{3}{4}$ "	$\frac{3}{8}$ "	FD-240	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "
$\frac{1}{2}$ "	$\frac{3}{8}$ "	FD-160	$1\frac{5}{16}$ "	$1\frac{1}{4}$ "	$2\frac{5}{32}$ "	$\frac{3}{8}$ "	FD-250	$1\frac{1}{4}$ "	$1\frac{3}{8}$ "
$1\frac{1}{32}$ "	$\frac{3}{8}$ "	FD-170	1"	$1\frac{1}{4}$ "	$\frac{7}{8}$ "	$\frac{1}{2}$ "	WH-280	$1\frac{3}{8}$ "	$1\frac{13}{16}$ "
$\frac{9}{16}$ "	$\frac{3}{8}$ "	FD-180	$1\frac{1}{16}$ "	$1\frac{1}{4}$ "	$2\frac{9}{32}$ "	$\frac{1}{2}$ "	WH-290	$1\frac{1}{16}$ "	$1\frac{13}{16}$ "
$1\frac{1}{32}$ "	$\frac{3}{8}$ "	FD-190	$1\frac{1}{16}$ "	$1\frac{1}{4}$ "	$1\frac{5}{16}$ "	$\frac{1}{2}$ "	WH-300	$1\frac{1}{2}$ "	$1\frac{13}{16}$ "



PIPE WRENCHES

A EXTERNAL TYPE

Movable jaw has pipe size markings. Flat and coil spring provides tension to grip pipe without wedging jaws. Hardened machine cut teeth.

No.	Lgth.	Cap.	No.	Lgth.	Cap.
PW-6A	6"	$\frac{3}{4}$ "	PW-18A	18"	$2\frac{1}{2}$ "
PW-8A	8"	1"	PW-24A	24"	3"
PW-10A	10"	$1\frac{1}{2}$ "	PW-36A	36"	$4\frac{1}{2}$ "
PW-12A	12"	$1\frac{3}{4}$ "	PW-48A	48"	6"
PW-14A	14"	2"			

PWA-904 Set. Consists of four wrenches: the 6", 8", 10" and 14".

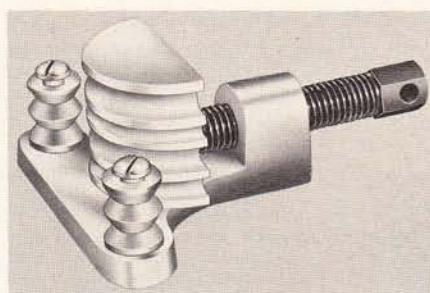
PWA-906 Set. Consists of the 6", 8", 10", 14", 18" and 24" sizes.

B INTERNAL TYPE

Center knurled section rotates in either direction to grip inside wall of pipe. Use any tool to turn hex handle. Excellent for removing or installing pipe, nipples or fittings.

No.	Size	No.	Size
PWN-4	$\frac{3}{8}$ "	PWN-32	1"
PWN-8	$\frac{1}{2}$ "	PWN-40	$1\frac{1}{4}$ "
PWN-12	$\frac{3}{4}$ "	PWN-48	$1\frac{1}{2}$ "
PWN-16	$\frac{1}{2}$ "	PWN-64	2"
PWN-24	$\frac{3}{4}$ "		

PWN-904 Set. Consists of 4 sizes, PWN-12, PWN-16, PWN-24, and PWN-32. In buttoned plastic case.



TUBE BENDER

GA-244 Tube Bender. Here is the sure cure for those small tube bending problems . . . lets you make a smooth bend without danger of collapsing or denting the tubing. The tool will make a bend up to 180 degrees and $1\frac{3}{16}$ " O.D. radius in $\frac{3}{16}$ ", $\frac{1}{4}$ " and $\frac{5}{16}$ " steel and copper tubing and in $\frac{3}{8}$ " copper tubing. The end of the pressure screw has a friction ball and engages in either of two holes in the Nylon halfmoon forming pad. The pad is reversible to line up the required tubing channel with the "V" in the pressure posts. The posts are made of Polypropylene to minimize friction as tubing passes.

Snap-on FLANK DRIVE FLARE NUT WRENCHES



Left: Ordinary flare nut wrench places all of the turning stress on the corner.

Right: "Flank Drive" wrench contacts the side of the nut, turns it easier and without damage.



▲ A DOUBLE END, FLANK DRIVE SINGLE HEX SERIES

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
1/4" & 5/16"	RXH-810S	13/32" & 1/2"	7/32" & 9/32"	4"
5/16" & 3/8"	RXH-1012S	29/32" & 45/64"	9/32" & 11/32"	5 11/16"
3/8" & 7/16"	RXH-1214S	51/64" & 7/8"	11/32" & 3/8"	6 1/4"
7/16" & 1/2"	RXH-1416S	7/8" & 31/32"	3/8" & 3/8"	6 15/16"
1/2" & 9/16"	RXH-1618S	31/32" & 1 1/16"	3/8" & 7/16"	7 1/2"
9/16" & 11/16"	RXH-2022S	1 1/64" & 1 15/64"	7/16" & 1/2"	7 21/32"
3/4" & 13/16"	RXH-2426S	1 15/64" & 1 11/32"	1/2" & 17/32"	8 3/8"

▲ B RXH-6075-K Set. Consists of the seven single hex Flare Nut Wrenches RXH-810S through RXH-2426S listed above, in C-75B Kit Bag. RXH-6075 Set. Above set without the kit bag.

▲ C DOUBLE END, FLANK DRIVE DOUBLE HEX SERIES

Wrench Sizes	Stock No.	Head Diameters	Head Depths	Overall Length
3/8" & 7/16"	RXH-1214	51/64" & 7/8"	11/32" & 3/8"	6 1/4"
15/32" & 1 1/32"	RXH-1517	7/8" & 31/32"	3/8" & 13/32"	6 1/4"
1/2" & 9/16"	RXH-1618	31/32" & 1 1/16"	3/8" & 7/16"	7 1/2"
5/8" & 1 1/16"	RXH-2022	1 1/64" & 1 15/64"	7/16" & 1/2"	8 1/2"
3/4" & 1"	RXH-2432	1 1/16" & 1 13/16"	7/16" & 1/2"	8 9/16"
3/4" & 1 1/8"	RXH-2836	1 13/32" & 1 3/4"	9/16" & 1 1/16"	9 7/8"

▲ D COMBINATION OPEN END AND SINGLE HEX FLANK DRIVE FLARE NUT WRENCHES

Wrench Size	Stock No.	Head Diameter		Head Depth		Overall Length
		Box End	Open End	Box End	Open End	
5/16"	RXS-10	45/64"	21/32"	5/16"	5/16"	5 3/16"
3/8"	RXS-12	51/64"	13/16"	11/32"	11/32"	5 7/8"
7/16"	RXS-14	57/64"	15/16"	3/8"	3/8"	6 3/8"
1/2"	RXS-16	63/64"	1 3/32"	29/64"	3/8"	6 15/16"
9/16"	RXS-18	1 1/16"	1 7/32"	7/16"	7/16"	7 3/8"
5/8"	RXS-20	1 1/64"	1 11/32"	7/16"	7/16"	7 7/8"
11/16"	RXS-22	1 7/64"	1 7/16"	15/32"	15/32"	8 3/8"
3/4"	RXS-24	1 15/64"	1 9/16"	1/2"	1/2"	9 1/8"

CROWFOOT WRENCHES WITH SINGLE HEX FLANK DRIVE OPENINGS

These wrenches speed and ease the servicing of soft metal flare nut fittings encountered on fuel lines, transmission lines, cooler lines, etc. Their "Flank Drive" design prevents rounding or distortion of the fitting corners and also reduces contact stresses and deformation of the wrench. The single hex configuration allows greater torque application without slipping. This feature is particularly important when "frozen" fittings are encountered. For use with a 3/8" drive handle, they enable you to use the most suitable handle for the job, such as a ratchet for speed, a Torqometer to insure correct tightening, a combination of extension and handle to reach into recessed areas, etc. Because they reduce unnecessary damage and enable rapid and efficient work, even

on hard-to-reach fittings, these tools are invaluable to mechanics in the automotive, aircraft, and aero-space industries. Chrome plated finish.

Wrench Size	Stock Number	Head Thickness	Head Width	Overall Length
3/8"	FRH-120S	3/8"	7/8"	1 11/32"
7/16"	FRH-140S	3/8"	29/32"	1 13/32"
1/2"	FRH-160S	3/8"	1"	1 7/16"
9/16"	FRH-180S	7/16"	1 1/8"	1 5/8"
5/8"	FRH-200S	7/16"	1 1/8"	1 5/8"
11/16"	FRH-220S	1/2"	1 5/16"	1 29/32"
3/4"	FRH-240S	1/2"	1 5/16"	1 29/32"

207S-FRH Set. Consists of one each of above single hex Flank Drive crowfoot wrenches.

▲ A Double End, Single Hex, Flank Drive Flare Nut Wrenches. Two different sizes on one handle. Heads are offset to give knuckle clearance — openings are angled for easier working.

▲ C Double End, Flank Drive Double Hex Type. Same pattern as above but with double hex openings.

▲ D Combination Open End and Flank Drive Single Hex Flare Nut Wrenches. Same size opening at each end. Both openings set at 15° angle to handle and heads at 15° offset for knuckle clearance.

▲ E Single End, Flank Drive Double Hex Flare Nut Wrenches. A favorite of many users who need certain sizes for constant use, such as assembly line work.

▲ E SINGLE END, FLANK DRIVE DOUBLE HEX SERIES

Wrench Size	Stock No.	Head Diameter	Head Depth	Overall Length	Wrench Size	Stock No.	Head Diameter	Head Depth	Overall Length
9/16"	RX-18	1"	13/32"	6 1/2"	1"	RX-32	1 19/32"	2 1/32"	7 25/32"
5/8"	RX-20	1 5/64"	7/16"	6 3/4"	1 1/16"	RX-34	1 43/64"	2 3/32"	7 21/32"
11/16"	RX-22	1 11/64"	15/32"	7 1/16"	1 1/8"	RX-36	1 49/64"	3/4"	7 7/8"
3/4"	RX-24	1 1/4"	17/32"	7 3/8"	1 1/4"	RX-40	1 15/16"	27/32"	7 31/32"
13/16"	RX-26	1 11/32"	17/32"	7 5/8"	1 3/8"	RX-44	2 3/32"	7/8"	13 1/16"
7/8"	RX-28	1 27/64"	19/32"	7 23/32"	1 1/2"	RX-48	2 17/64"	3 1/32"	13 3/8"
15/16"	RX-30	1 1/2"	19/32"	7 3/4"	1 5/8"	RX-52	2 27/64"	1"	13 3/32"



Combination Open End and Flare Nut Wrench Set

RXS-605-K Set. Consists of the five combination Open End and Flare Nut Wrenches RXS-12 through RXS-20 in C-50B kit bag.

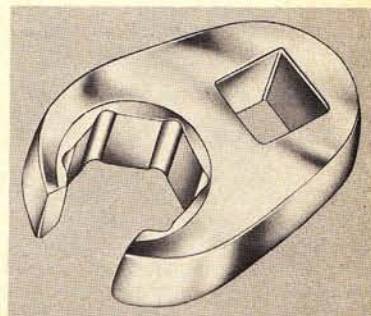
RXS-605 Set. Above set without kit bag but in a plastic tray.



Double End, Double Hex Flare Nut Wrench Set

RXH-606-K Set. Consists of the six double hex Flare Nut wrenches RXH-1214, RXH-1618, RXH-2022, RXH-2432, RXH-2836, in C-62B Kit Bag.

RXH-606 Set. Above set without kit bag.





Snap-on FLEX-HEAD WRENCHES

OPEN-END—FLEX-HEAD COMBINATIONS

A Snap-on FLEX-HEAD WRENCHES "FLANK-DRIVE" HEX OPENINGS

Extremely handy wrenches for universal flange bolts, pan screws that are under cross members, and a hundred and one similar jobs. With the handle in a vertical position you can spin the nut on and then flex over to a horizontal position for final tightening. FH-1214CS is single hex and the other sizes are double hex. Full polished chrome finish.

Wrench Size	Stock No.	Head Diameters	Overall Length
$\frac{3}{8}$ " & $\frac{7}{16}$ "	FH-1214CS	$\frac{9}{16}$ " & $\frac{5}{8}$ "	6 $\frac{7}{32}$ "
$\frac{7}{16}$ " & $\frac{1}{2}$ "	FH-1416C	$\frac{5}{8}$ " & $2\frac{3}{32}$ "	6 $\frac{7}{8}$ "
$\frac{1}{2}$ " & $\frac{9}{16}$ "	FH-1618C	$4\frac{5}{64}$ " & $2\frac{5}{32}$ "	7 $\frac{19}{32}$ "
$\frac{9}{16}$ " & $\frac{5}{8}$ "	FH-1820C	$2\frac{5}{32}$ " & $\frac{7}{8}$ "	8 $\frac{9}{16}$ "
$\frac{5}{8}$ " & $\frac{3}{4}$ "	FH-2024C	$\frac{7}{8}$ " & 1"	9 $\frac{11}{16}$ "
$1\frac{1}{16}$ " & $1\frac{1}{8}$ "	FH-2226C	1" & $1\frac{1}{8}$ "	10 $\frac{1}{16}$ "
$\frac{3}{4}$ " & $\frac{7}{8}$ "	FH-2428C	$1\frac{3}{64}$ " & $1\frac{1}{16}$ "	10 $\frac{5}{8}$ "

B FLEX-HEAD WRENCH SET

FH-607B-K Set. Consists of the 7 Flex-Head wrenches FH-1214CS through FH-2428C listed above, in C-75B vinyl-fabric bag.

FH-607B Set. Above set but without the C-75B kit bag.

C Snap-on FLEX-COMBINATION WRENCHES "FLANK DRIVE" HEX OPENINGS

The best features of an open-end wrench, a socket wrench and a flexible box wrench—all in one tool. Thin heads with slender open jaws reach in where working space is at a minimum... openings have rounded bottoms to add strength to the jaw base. Flank Drive double hex broaching in the flexible socket end prevents rounding the corners of the nut or bolt head, allows the use of greater turning torque and prolongs tool life.

Wrench Size	Stock No.	Head Diameter		Thickness Open End	Overall Length
		Box End	Open End		
$\frac{7}{16}$ "	OH-14	$\frac{5}{8}$ "	$2\frac{9}{32}$ "	$1\frac{5}{64}$ "	7 $\frac{15}{32}$ "
$\frac{1}{2}$ "	OH-16	$2\frac{3}{32}$ "	$1\frac{1}{16}$ "	$\frac{1}{4}$ "	9 $\frac{1}{8}$ "
$\frac{9}{16}$ "	OH-18	$2\frac{5}{32}$ "	$1\frac{3}{16}$ "	$1\frac{7}{64}$ "	10 $\frac{21}{32}$ "
$\frac{5}{8}$ "	OH-20	$2\frac{9}{32}$ "	$1\frac{5}{16}$ "	$\frac{9}{32}$ "	12 $\frac{19}{32}$ "
$1\frac{1}{16}$ "	OH-22	$3\frac{1}{32}$ "	$1\frac{7}{16}$ "	$1\frac{9}{64}$ "	14 $\frac{1}{2}$ "
$\frac{3}{4}$ "	OH-24	$1\frac{3}{64}$ "	$1\frac{9}{16}$ "	$\frac{5}{16}$ "	16 $\frac{1}{32}$ "
$1\frac{3}{16}$ "	OH-26	$1\frac{1}{8}$ "	$1\frac{11}{16}$ "	$\frac{3}{8}$ "	16 $\frac{5}{16}$ "
$\frac{7}{8}$ "	OH-28	$1\frac{1}{16}$ "	$1\frac{13}{16}$ "	$\frac{3}{8}$ "	17 $\frac{1}{8}$ "

OH-608 Set. Consists of the 8 Flex-Combination wrenches OH-14 through OH-28 above.

POWERFUL VISE-GRIP WRENCHES—CUTTERS—PLIERS—BENDERS—CLAMPS, ETC.



A Standard Vise-Grip Wrenches. Indispensable for all types of work. Double action locks jaws on work, grips all shapes, will not slip. Works in close quarters, at any angle. Substitutes for vise, clamp, pipe wrench, etc.

▲ VP-7R 7" Vise-Grip Wrench.

▲ VP-10R 10" Vise-Grip Wrench.

B Vise-Grip with Wire Cutter. Actually 8 tools in one—adjustable end wrench, thin nose plier, pipe wrench, portable toggle press, locking wrench, clamp, vise and bolt cutter. Provides a powerful grip on any object.

VP-5 WRB Vise-Grip. Jaw capacity $1\frac{1}{4}$ ".

▲ VP-7WR 7" Vise-Grip. Jaw capacity $1\frac{3}{8}$ ".

▲ VP-10WR 10" Vise-Grip. Jaw capacity $1\frac{5}{8}$ ".

C VPO-7 Vise Grip Pinch-off Plier. The tool is approximately 7" long with a jaw adjustment from 0 to $1\frac{3}{8}$ ". Jaws are $\frac{3}{4}$ " long and are rounded to prevent damage to flexible tubing. Tool is designed to "pinch off" tubing, fuel lines, hoses, etc. Useful when checking "PCV" valve operation, vacuum control operation, "CAP" emission control systems and other jobs involving flexible tubing.

The Vise-Grip Wrenches have an "easy-release" handle mounted inside the handle. When the wrench is locked this lever contacts the locking lever. When the wrench is to be removed, a slight pressure on the release allows the jaws to spring to open position. Saves time, works easily in tight places.

D VP-20R Chain Wrench. A highly versatile tool that holds and locks around any shape and size that a chain can be wrapped around. It combines the features of chain clamp and a pipe wrench and provides tremendous gripping power, yet has easy, quick release. Excellent for tail-pipe and oil filter removal, holding parts for welding or drilling. Chain will take any size work up to 19" perimeter. Extension chain also available as well as replacement chain, however, these two chains are not interchangeable.

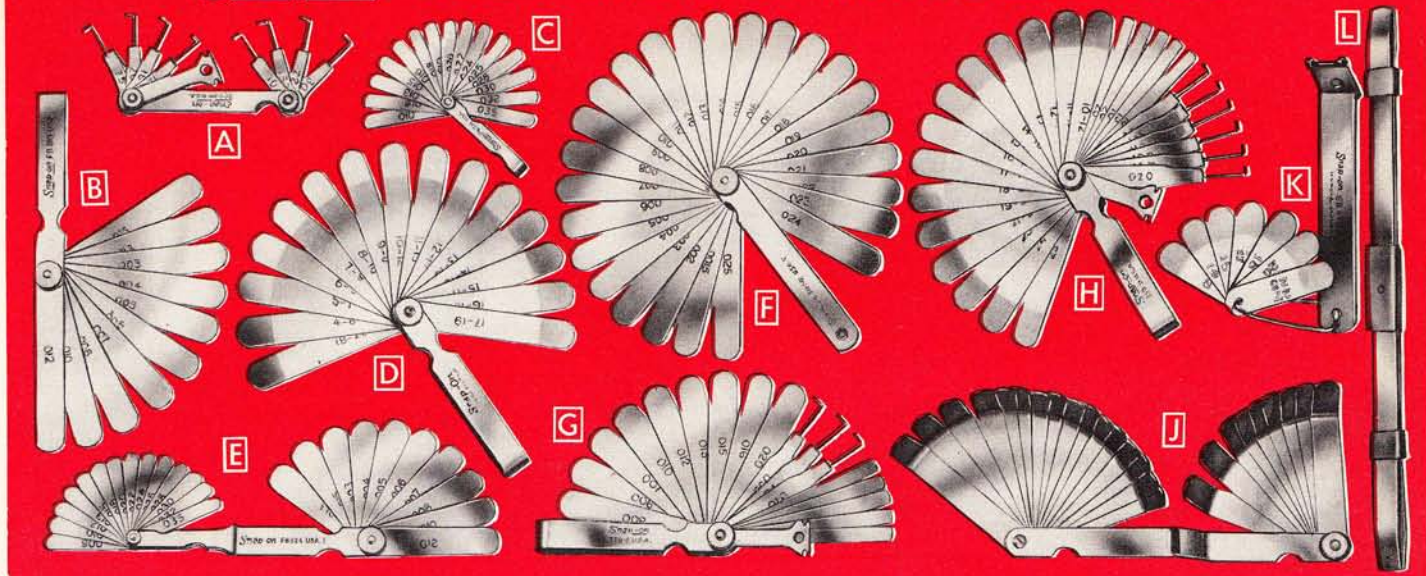
VP-20REP Replacement Chain for VP-20R.

VP-20EX Extension Chain for VP-20R.

▲ E VP-9R Vise-Grip Welding Clamp. Parts are aligned almost instantly and held in position leaving both hands free. Special U-shaped jaws provide perfect visibility and working room. End screw provides quick jaw opening adjustment up to $1\frac{5}{8}$ ". Ideal for fender work, soldering, riveting, etc.

F VP-8R Vise-Grip Bending Tool. Wide jaws make this Vise-Grip ideal for sheet metal work. Provide a solid grip for twisting, bending, shaping or pulling. Eliminates tiresome "hand-gripping." Clamps onto the work leaving hand free. Useful for upholstery work, material can be stretched without danger of unravelling. 8" long, jaws $3\frac{1}{8}$ " wide, throat depth $1\frac{3}{4}$ ".

G VP-11R Vise-Grip "C" Clamp. Much faster than ordinary "C" clamp. End screw provides quick jaw opening adjustment up to $3\frac{1}{2}$ " diameter. Align pieces to be clamped, place Vise-Grip in position—a squeeze of the hand locks it into position—hold awkward pieces easily.

® Snap-on**FEELER GAUGES OF HIGH QUALITY STEEL**

All blades are tested for accuracy. Gauges are equipped with knurled nut permitting user to slide out the required blade and lock it in position.

A FB-302 Aviation Wire Gap Gauge with eight wires, FB8A-010 through -030 in sizes .010, .012, .015, .018, .020, .022, .025, .030 and an electrode bender.

A FB-301 Automotive Wire Gap Gauge with eight wires, FB8A-022 through -040 in sizes .022, .025, .028, .030, .032, .035, .038, .040, and an electrode bender.

Extra wires in any of above sizes are available at all times.

B FB-310 Standard Feeler Gauge. Ten blades $3\frac{3}{8}$ " long FB1A-005 through -015 in sizes .003, .004, .005, .006, .007, .008, .010, .012, .013 and .015.

C FB-316A Ignition and Spark Plug Gauge. Seventeen fingers $1\frac{3}{4}$ " long FB3A-010 through -035 in sizes .010, .012, .013, .015, .016, .017, .018, .019, .020, .022, .024, .025, .026, .028, .030, .032, .035.

D FB-315 Step Feeler Gauge. Contains 15 "go, no-go" blades FB4-5 through -19 in sizes .004-.006, .005-.007, .006-.008, .007-.009, .008-.010, .009-.011, .010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019 and .018-.020.

E FB-326 Combination Feeler and Ignition Gauge. Ten $2\frac{1}{2}$ " blades FB2A-003 through -015 and sixteen $1\frac{3}{4}$ " fingers FB3A-008 through -035. Blade thicknesses: .003, .004, .005, .006, .007, .008, .010, .012, .013 and .015. Fingers: .008, .010, .012, .013, .015, .017, .018, .020, .022, .024, .025, .026, .028, .030, .032, .035.

F FB-325 General Use Feeler Gauge. Contains the following $3\frac{3}{8}$ " blades FB1A-0015 through -025. Sizes—.0015, .002, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025.

G FB-379 Chevrolet Feeler Gauge. Contains nine $3\frac{3}{8}$ " blades FB1A-006 through -020 in thicknesses of .006, .007, .008, .010, .012, .013, .015, .016, .020; five finger blades FB5A-016 through -022 in sizes .016, .018, .019, .020, .022; three wire gap gauges FB7A-032 through -040 in sizes .032, .035 and .040 and an electrode bender.

H FB-359 Ford Feeler Gauge. Contains four spark gap bent wire feelers .025, .028, .030, spark gap bent wire feelers FB7A-025 through -035, .028, .030, .035; two straight wire feelers for voltage regulator cutout FB11A-017 and FB11A-030, .030; five ignition finger blades FB5A-013 through -025 in sizes .013, .015, .016, .020, .025; fourteen step-ground blades FB4-11 through -26 in sizes .010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019, .018-.020, .019-.021, .021-.023, .023-.025, .024-.026, .025-.027, and an electrode bender.

J FB-300 Bent Blade Feeler Gauge. Contains twenty-five $3\frac{1}{4}$ " blades, each with the end bent at a 45-degree angle. This minimizes danger of skinned knuckles or burns from hot manifold when checking overhead valve clearances. Blades included are FB14-006 thru -030 in sizes .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025, .026, .027, .028, .029 and .030.

K FB-308 Stop Feeler Gauge Set. Consists of the FB-308-1 Offset Holder and the FB-308-2 set of blades. The handle is bent to clear exhaust manifolds... make adjustment more accurately as the blade is not bent to clear obstructions. Blades are inserted in the bent end and over a raised nub which engages the hole in the blade. Spring action holds the blade securely until released. Blades are 2" long with a $\frac{1}{16}$ " stepped end. Recommended for valve adjustment on Ford 6's and V-8's, Mercury and Ford trucks using Lincoln V-8 engine without hydraulic valve lifters.

FB-308-1 Offset Holder. Patent No. 2,817,151.

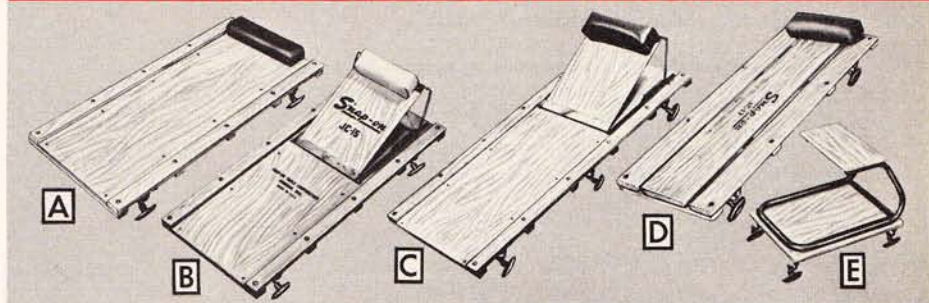
FB-308-2 Set of Eight Step Blades. FB12A-9 thru -26 in sizes .008-.010, .011-.013, .014-.016, .015-.017, .017-.019, .018-.020, .020-.022, .025-.027.

Extra Blades, Fingers and Wires. We can supply extra blades, fingers, or wires in regular thicknesses, in $3\frac{3}{8}$ " or $2\frac{1}{2}$ " lengths and in fingers $1\frac{3}{4}$ " length.

L FB-312 Feeler Gauge Holder. 10" long holder designed to hold two 12" feeler blades. Blades extend 2" or further if desired and are held firmly by two sliding end clamps. The two-blade feature is handy where intake and exhaust valve specifications differ or for use as a go and no-go gauge. The extra length available when the blades are extended is very useful in gauging parts that are otherwise difficult to reach.

12" Strips

Following sizes of feeler gauge stock are available in 12" strips FB6A-0015 thru -040 in following sizes: .0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025, .026, .027, .028, .029, .030, .032, .035 and .040. Use in FB-312 Holder listed above.

CREEPERS AND STOOL RIDE EASILY OVER ROUGH FLOORS**A STANDARD CREEPER**

JC-12 Standard Type Creeper. Constructed of tough, resilient plywood, this unit is built to withstand hard knocks. Comfortable foam rubber head rest is covered with a plastic material which is resistant to acids, grease, gas and alcohol. Four swivel type metal casters can roll over rough, uneven surfaces. Overall length is 36", width is 15 $\frac{1}{4}$ ".

B ADJUSTABLE HEAD REST CREEPER

JC-15 Adjustable Head-Resst Creeper. This unit is the same as model JC-12 described above, but is equipped with an adjustable head rest. The hinged portion can be adjusted to the desired height quickly and easily and prevents cramped neck and back muscles by providing ample support. Overall length is 36", width is 15 $\frac{1}{4}$ ".

C LARGE DELUXE CREEPER

JC-16 Deluxe, King Size Creeper with Adjustable Head Rest. Designed for those who prefer a larger, heavier creeper with the adjustable head rest feature. Full 42" length and 17" width provide plenty of support, while the six swivel metal casters permit fast and easy movement to the required location. Foam rubber head rest is covered with a plastic which resists most solvents.

D HEAVY DUTY CREEPER

JC-17 Heavy Duty Creeper is truly a rugged unit, and is designed to withstand long, hard service. Constructed of carefully selected, kiln-dried hardwood, this creeper is mounted on four metal swivel casters. The unit is designed for maximum service life while providing plenty of use. The comfortable foam rubber head rest is covered with the same type of solvent resistant plastic material as that used on our JC-16 creeper. Overall length of this heavy duty creeper is 35 $\frac{1}{4}$ ", width is 15".

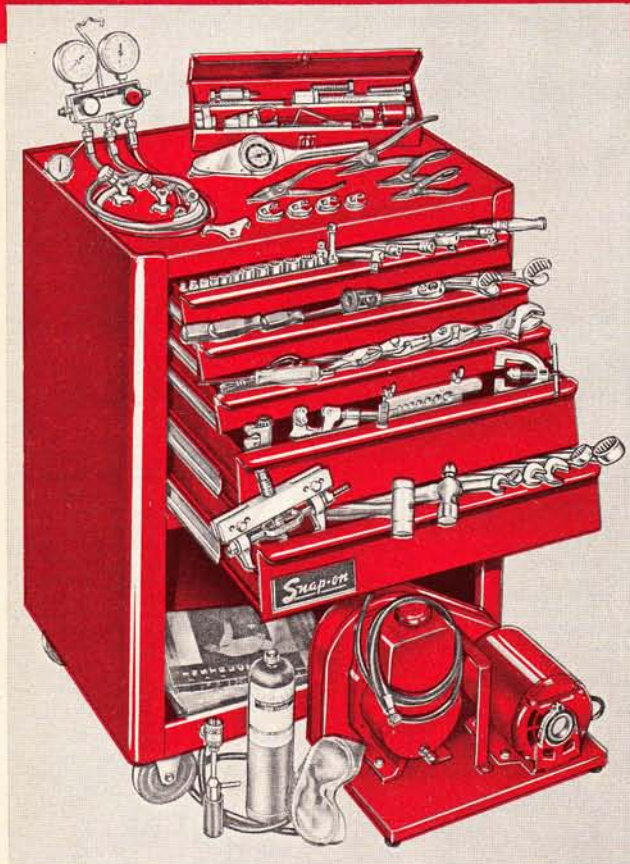
E MECHANIC'S WORK STOOL

JC-19 Mechanic's Work stool is especially useful for brake work, body repair work, etc. This solidly constructed unit is made of wood and heavy tubular steel. The large bottom shelf is convenient for storing tools or equipment needed on the job. Four swivel nylon casters roll easily over rough or uneven floors. Overall length of the complete unit is 18 $\frac{1}{2}$ ", width 14", height (from floor) 13 $\frac{1}{2}$ ".

Note: Casters on all the above creepers are double swivel type with metal wheels that will roll over obstacles or rough floors without sliding and make creepers very low for easy access under cars.

POCKET MORE PROFIT

With *Snap-on* AUTOMOTIVE AIR CONDITIONER SERVICE SETS



BIG SET MEANS MORE PROFITS

2071A-ACT-B Complete Air Conditioner Service Set. As shown at left, this set includes all of the items included in the 2021C-ACT Special Tool Set and all of the standard tools listed at the bottom of the page. This set also includes the KRA-377A Coaster Cab, the GA-270 Heavy Duty Vacuum Pump, and the GA-284 6' extension hose.

2071A-ACT Set. Above set without Coaster Cab.

KRA-377A Coaster Cab. (see page 9)

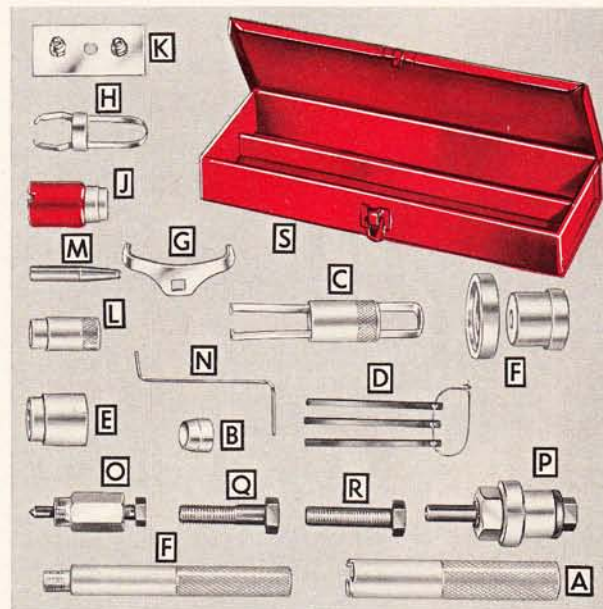
GA-284 Hose. 6' long hose permits you to evacuate the air conditioning system without removing the vacuum pump from the KRA-377A Coaster Cab. Hose is green to correspond with the GA-274 System Analyzer.

GA-270 Heavy Duty Vacuum Pump. This heavy duty vacuum pump operates at moderate speed, assuring lower operating temperatures as well as less vibration. Has a built-in automatic oil purification system which prevents vapor contaminated oil from entering the high vacuum (intake) stage during operation. The unit also has a system to prevent oil "suck-back". This belt driven pump has a belt guard and a built-in screen to prevent any solid matter from entering the pump. The GA-270 comes complete with an exhaust dome, a drain fitting and an oil supply.

BASIC SET INCREASES PROFIT

2010C-ACT Basic Set. Includes the following: (Shown below)

- (A) **ACT-1 Shaft Seal Remover and Installer.** For servicing the air compressor seal.
- (B) **ACT-4 Shaft Seal Pilot Bushing.** Prevents damaging seals during installation.
- (C) **ACT-8A Shaft Seal Seat Remover and Installer.** Use on GM products.
- (D) **ACT-9 Rotor Plate Clearance Gauge Set.** Consists of ring holder with three, non-magnetic, 4" long feeler gauge blades sizes: .025", .035", and .045".
- (E) **ACT-10 Puller Adaptor.** Used to protect shaft and inside components when removing the pulley assembly of GM Air Conditioning Systems.
- (F) **ACT-11 Puller Bearing Remover and Replacer Set.** Used to remove and replace puller bearing. Consists of handle and two adaptors.
- (G) **ACT-12 Clutch Hub Holding Wrench.** Used to hold the clutch hub of air conditioning compressors when removing, replacing and torquing the lock nut on the compressor shaft. Used with an F-10LB handle.
- (H) **ACT-13 Seal Remover.** Used to remove both cartridge and unitized type seals.
- (J) **ACT-14 Seal Installer.** Used to install both cartridge and unitized type seals without marring delicate surfaces.
- (K) **ACT-15 Compressor Test Plate.** Used to test GM Compressors only.
- (L) **ACT-16 Seal Seat Remover.** Used to remove seal seats on Chrysler products.
- (M) **ACT-17 Seal Protector.** Used to protect seals, during removal, on GM air conditioning compressors.
- (N) **ACT-18 Seal Hook.** Required to remove the felt seal sleeve used on late model 1967 GM cars.
- (O) **ACT-19 Rotor Plate Puller.** Used to remove the rotor plate on GM products.
- (P) **ACT-20 Rotor Plate Installer.** Used to install rotor plates on GM products.
- (Q) **ACT-21 Bolt.** For removing the drive pulley and clutch from Ford and Chrysler products.
- (R) **ACT-22 Bolt.** For removing the drive pulley and clutch from some Chrysler products.
- (S) **2010C-ACT-B Set.** Above set complete in KRA-279 Metal Box.
- 2011C-ACT Set.** Same tools as above plus the CJ-80 Puller.
- 2011C-ACT-B Set.** Above set with the KRA-279 Metal Box.



STANDARD TOOLS INCLUDED IN THE 2071A-ACT AIR CONDITIONER SERVICE SET

Number	Description	Page	Number	Description	Page	Number	Description	Page
87	Diagonal Cutter.....	67	HCP-48BP	Hose Clamp Plier.....	69	PR-26	Ext. Lock Ring Plier, 9/16".....	69
137	Combination Plier.....	66	OEX-16	1/2" Combination Wrench....	78	RXH-2432	3/4 & 1" Flare Nut Wrench, 2 Incl....	87
219-FP	Ferret Wrench Set, 3/8" Drive	39	OEX-18	3/16" Combination Wrench....	78	RXH-2836	1/2" & 1 1/8" Flare Nut Wrench, 2 Incl....	87
BH-16	Brass Hammer.....	76	OEX-20	3/8" Combination Wrench....	78	SSD-4	1/4" Tip Screwdriver, 4" Blade.....	72
BP-208	Ball Peen Hammer.....	76	OEX-24	3/4" Combination Wrench....	78	SSD-6	3/16" Tip Screwdriver, 6" Blade.....	72
D-710	10" Adjustable Wrench....	77	OEX-30	1 1/8" Combination Wrench....	78	SSDP-42	No. 2 Phillips Screwdriver, 4" Blade..	73
FRH-140S	7/16" Hex Crowfoot Wrench..	87	OEX-40	1 1/4" Combination Wrench....	78	TC-28	Tubing Cutter, 1/2" to 1".....	86
FRH-180S	9/16" Hex Crowfoot Wrench..	87	PR-21	Int. Lock Ring Plier, 5/16"...	69	TC-123	Tubing Cutter, 1/2" to 1/2".....	86
FRH-200S	3/4" Hex Crowfoot Wrench...	87	PR-22	Ext. Lock Ring Plier, 5/16"...	69	TF-7A	Tube Flaring Tool.....	86
FRH-240S	1/2" Hex Crowfoot Wrench...	87	PR-23	Int. Lock Ring Plier, 6/16"...	69	TE-50F	Torgometer, 50 ft. lb. cap. 1/2 dr.....	26



2021C-ACT-B AUTOMOTIVE AIR CONDITIONER SERVICE KIT

CASH IN ON A PROFITABLE NEW DEVELOPMENT IN AUTOMOTIVE SERVICE

Get in on the ground floor of a brand new, rapidly expanding development in automotive service — with a minimum investment and a maximum return. Air conditioning service is a big volume, profitable business. Almost half of today's cars are factory equipped with air conditioning or have "hang on" air conditioners . . . and an automotive air conditioning system should be checked every one to two years for efficient cooling. You can profit on replacement parts as well as through related work.

2021C-ACT-S Set. Includes the ACT-2021-ACT Set and VE-112B Display Board.

2021C-ACT-SB Set. Includes ACT-2021-ACT Set, VE-112B Display Board and KRA-270A Cabinet.

2021C-ACT Special Tool Set. Includes all the tools listed in the 2010C-ACT Basic Set plus the following:

CJ-80 Puller. Used to remove drive pulleys. (see page 123)

CJ-81-2A Jaw. (2 included) 4" long, for use with CJ-80.

CT-4B Circuit Tester. Checks the electric components in the compressor, ignition switch and fuse.

GA-263 Leak Detector. Flame changes color when suction hose locates Freon and other halide gas leaks. Do not use where combustible gases, dust or vapors are present.

GA-273 Thermometer. Used to check the temperature of the condenser, outside air and cooling power.

GA-274 System Analyzer. Used for testing, charging, purging and adding oil to the air conditioner system. Hoses are color coded.

GA-281 and GA-283 Hose. (not shown) Color coded optional extension hoses for use with the GA-274 System Analyzer.

GA-275 Tap-A-Can Dispenser Valve. (2 required)

GA-277 Hose. For use with the GA-274 System Analyzer when used to purge systems. 36" long, green color.

GA-280 "O" Ring Installer. Used to install the shaft seat seal "O" ring in the compressor without removing the compressor from the car.

GAC-1070 Safety Goggles. Sturdy plastic lens conforms to Federal strength and piercing specifications. Soft form-fitting plastic frame is vented to prevent steaming up.

R-71 Refrigeration Ratchet. Provides the speed and convenience needed in opening and closing the back seat service valves in the system.

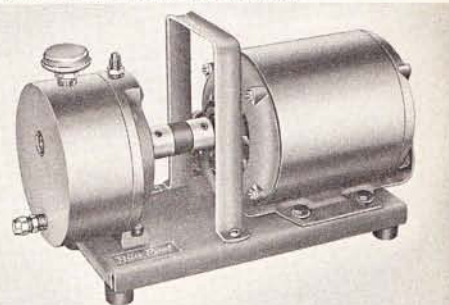
SB-329 Instruction Sheet.

VE-112B Display Board. Optional, for the 2021C-ACT Set. 24" x 32" x 3/4". White tool outlines on red board.

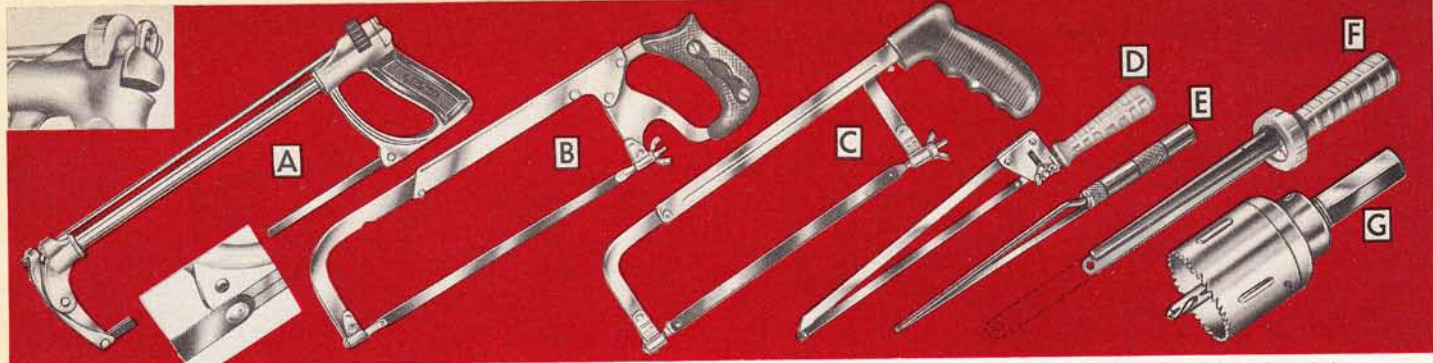


SS-327 Air Conditioner Service Sign. Advertise your service with this eye-catching sign. This heavy duty wall sign can be attached to our SS-313 wall bracket and interchanged with the other service signs in the Snap-on series for the proper season. Size: 18" x 24". Color: red-white-blue.

**AIR
CONDITIONER
EVACUATION
PUMP**
•
1/4 H.P.
•
PORTABLE



GA-271 Vacuum Pump. A highly popular unit for automotive air conditioner work. It combines high quality and compact size to provide efficiency, convenience and versatility. This unit is of rotary sliding vane design, oil lubricated and built to the same high quality standards as the GA-270 (included in the 2071A-ACT-B Air Conditioner Service Set). This pump is designed for those needing a high quality, compact vacuum pump.



HACKSAW FRAMES

A HS-12 Deluxe Hacksaw Frame. Gives you many superior features... light weight... extreme rigidity... cuts flush against a flat surface either parallel or at right angles to it. There is no projecting wing nut or handle to interfere. Saw teeth extend below frame so that you can cut to floor or wall. Close-working front end allows working in close quarters like under hood of car. Has generous throat capacity. Storage place for blades in handle. Blade slides into machined slots in frame assuring perfect alignment. Tension obtained by lever action controlled by knurled nut... a slight adjustment provides rigid blade so that entire cut is controlled, there is no "wobble" and longer blade life results. For right angle use the blade is held by the pins onto the bottom surface of the end parts. Frame is only 16" long yet uses 12" blades.

B HS-8 Quality Hack Saw Frame. Rigid construction and excellent balance reduce possibility of blade "whip" and breakage and make this saw a pleasure to use. Handle and rear leg are one-piece design with large hand opening... power is delivered along the blade line... plastic hand plates offer a firm, comfortable grip and stand out in pleasing contrast to the plated frame. This frame will take 10" or 12" length blades.

C HS-2 Standard Hack Saw Frame. A good all around tool rigidly built to keep the blade taut at all times. Comfortable, plastic pistol grip means less hand fatigue. Grip is molded to the frame... frame length is adjustable... accommodates any 8", 10" or 12" blade.

E HS-151 Junior Hack Saw. For use in very close quarters. Sturdily built to hold the blade with a non-buckling grip. Blades are 6" long x $\frac{3}{16}$ " wide, 32 teeth to the inch. Saw comes complete with one blade.

HSB-632A Packet of ten blades. For the HS-151 Hack Saw Frame.

"BLUE POINT" BLADES

Tungsten alloy steel blades, heat treated to give hardness with flexibility. Good general purpose blades which will give long satisfactory service with proper use.

Package (10 Blades) Stock No.	Length	Teeth per inch
HSB-1032	10"	32
HSB-1232	12"	32
HSB-1024	10"	24
HSB-1224	12"	24
HSB-1018	10"	18
HSB-1218	12"	18

Snap-on HACKSAW BLADES

Made of Molybdenum high speed steel with back of blade annealed to make it unbreakable. Tooth edge hardened for durability. Sharp twists and kinks, which are the main reason for saw breakage, are absorbed without damaging the blade. $\frac{1}{2}$ " wide, .025" thick. Available as single blades or in packages of ten blades.

Stock Number	Length in Inches	Teeth per Inch	Stock Number	Length in Inches	Teeth per Inch
HSS-1018	10"	18	HSS-1214	12"	14
HSS-1024	10"	24	HSS-1218	12"	18
HSS-1032	10"	32	HSS-1224	12"	24
			HSS-1232	12"	32

D LOW CLEARANCE HACKSAW

HS-3 Low Clearance Hack Saw. Adjustable feature allows cutting completely through 1" material or saws through narrow openings as small as 1" diameter with full blade tension. Tool is $16\frac{1}{2}$ " long and takes a 10" blade. Turning handle adjusts tension.

F HIGHLY VERSATILE JAB SAW

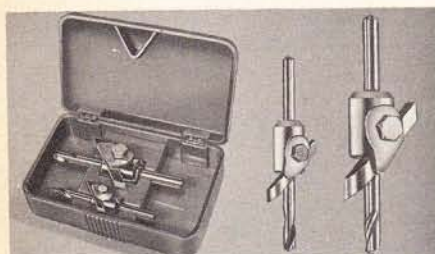
HS-13 Jab Saw. Will reach into areas where no other saw can operate. Consists of a die cast aluminum handle with a tempered sleeve attached. A patented clamping action holds a standard blade in any position. Broken blade may also be used for added economy. Blade replacement or positioning is accomplished quickly. A few left hand twists of the handle loosens the sleeve to permit blade movement in or out. A few twists to the right locks the blade securely in place. Designed to reach 6" into a $\frac{3}{4}$ " diameter hole with blade rigidly supported, the blade can also be extended to reach up to 10" further and flexed to cut flush with a surface.

G HIGH SPEED HOLE SAWS

High speed cutting edge is welded to a tough alloy steel back that absorbs shocks and prevents shattering due to overload or twist. Side slits permit removal of cuttings. High speed pilot drills are $\frac{1}{4}$ " diameter.

LHS-1 Arbor. Fits $\frac{9}{16}$ " to $1\frac{1}{16}$ " saws, $\frac{1}{2}$ " hex shaft.
LHS-2 Arbor. Fits $1\frac{1}{4}$ " and larger saws, $\frac{1}{2}$ " hex shaft.
LHS-5 Arbor. Fits $\frac{9}{16}$ " to $1\frac{1}{16}$ " saws, $\frac{1}{4}$ " round shaft.
LHS-4 Pilot Drill for above arbors. $\frac{1}{4}$ " diameter.

Stock No.	Dia.	Stock No.	Dia.	Stock No.	Dia.
LHS-18	$\frac{9}{16}$ "	LHS-40	$1\frac{1}{4}$ "	LHS-72	$2\frac{1}{4}$ "
LHS-20	$\frac{5}{8}$ "	LHS-42	$1\frac{3}{16}$ "	LHS-76	$2\frac{3}{8}$ "
LHS-22	$1\frac{1}{16}$ "	LHS-44	$1\frac{1}{2}$ "	LHS-80	$2\frac{1}{2}$ "
LHS-24	$\frac{3}{4}$ "	LHS-48	$1\frac{1}{2}$ "	LHS-84	$2\frac{3}{4}$ "
LHS-26	$1\frac{3}{16}$ "	LHS-52	$1\frac{3}{4}$ "	LHS-88	$2\frac{3}{4}$ "
LHS-28	$\frac{7}{8}$ "	LHS-56	$1\frac{3}{4}$ "	LHS-92	$2\frac{3}{4}$ "
LHS-32	1"	LHS-60	$1\frac{1}{8}$ "	LHS-96	3"
LHS-34	$1\frac{1}{16}$ "	LHS-64	2"	LHS-112	$3\frac{1}{2}$ "
LHS-36	$1\frac{1}{8}$ "	LHS-66	$2\frac{1}{16}$ "	LHS-128	4"
LHS-38	$1\frac{1}{16}$ "	LHS-68	$2\frac{1}{8}$ "	LHS-132	$4\frac{1}{8}$ "



ADJUSTABLE HOLE CUTTERS

HC-790 Bruno Hole Cutter Set. Two tools, will cut holes from $\frac{3}{8}$ " to $2\frac{1}{2}$ " diameter and $\frac{1}{8}$ " to $\frac{3}{8}$ " deep in sheet metal, brass, copper and aluminum—deeper holes in plastics, wood and masonite. Simple to adjust to any diameter. Use in low speed drill presses, electric hand drills or hand braces. Tool steel blades, heat treated shanks. Plastic case included in set.

Stock No.	Size Shank	Capacity	Thickness Capacity	Pilot Drill
HC-100	$\frac{1}{4}$ "	$\frac{3}{8}$ " to $1\frac{1}{2}$ "	up to $\frac{1}{8}$ "	$\frac{1}{4}$ "
HC-101	$\frac{3}{8}$ "	1" to $2\frac{1}{2}$ "	up to $\frac{3}{8}$ "	$\frac{3}{8}$ "

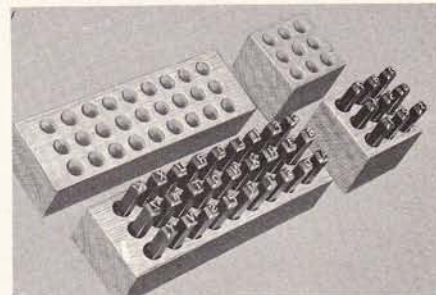
HC-100-1 Extra Blade for HC-100 Cutter.
HC-101-1 Extra Blade for HC-101 Cutter.



HOLE CUTTER KIT

GA-219 Hole Cutter Kit. Cuts round or irregular holes in mild steel, cast iron, aluminum, copper, stainless steel, wood, plastics and fiber up to $\frac{1}{4}$ " thick. Removes spot welds, especially in auto body work by cutting thru one layer of metal and thus separating the two sheet metal pieces—makes body part replacement a faster operation. To cut heads off bolts, screws or rivets use a blade one size larger than the bolt diameter.

Set includes arbor body and four pilots, depth stop rod and adjustment screw, and seven blades of diameters $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ " and $\frac{5}{8}$ ". The $\frac{1}{4}$ " diameter arbor is used in any $\frac{1}{4}$ " drill. Metal holder is drilled for mounting.



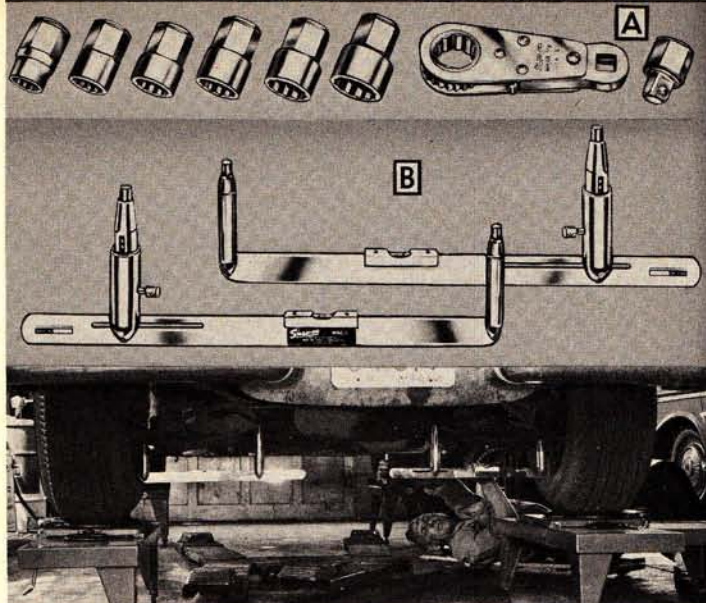
STEEL STAMPING SETS

Mark shop equipment, tools, rebuilt engines, transmissions, and other automotive parts with these useful sets for fast, positive identification. The stamps make large, $\frac{3}{16}$ " high characters for easy reading. The $\frac{5}{16}$ " square steel stamp bodies have been heat treated to minimize mushrooming, bending, battering, and chipping. Each unit is $2\frac{1}{2}$ " long which enables taking a firm grip while leaving enough room to make a solid hammer blow. The sets are stored in two-piece wooden containers which have separate holes for each stamp.

GA-237 Set has nine stamps with which any Arabic number can be made. One stamp serves for both number 6 and 9.

GA-238 Set has 27 stamps including all letters of the alphabet and a period.

SPECIAL TOOLS FOR CHRYSLER BUILT CARS



CASTER-CAMBER ADJUSTING TOOL SET

A WA-308 Caster-Camber Adjusting Wrench Set. Consists of the WA-28 Torque Adaptor Wrench, six special hex drive sockets to fit the wrench and an adaptor which adapts the wrench to any $\frac{1}{2}$ " square drive socket. Individual items listed below.

WA-308-B Set. Above set in KRA-40 Metal Box.

KRA-40 Metal Box. Not shown, but available as optional container for the WA-308 set. Size: $9\frac{1}{2}$ " x $5\frac{1}{2}$ " x 2".

WA-28 Torque Adaptor Wrench. 5" long with a $\frac{1}{2}$ " square drive opening in the handle and a $\frac{7}{8}$ " double hex reversible ratcheting "Loxocket." When used with the TE-175 SNAP-ON Torqometer it provides an accurate method of adjusting without oversteering.

Special Double Hexagon Sockets

WA-28-20 Socket $\frac{5}{8}$ " hex.

WA-28-22 Socket $1\frac{1}{16}$ " hex.

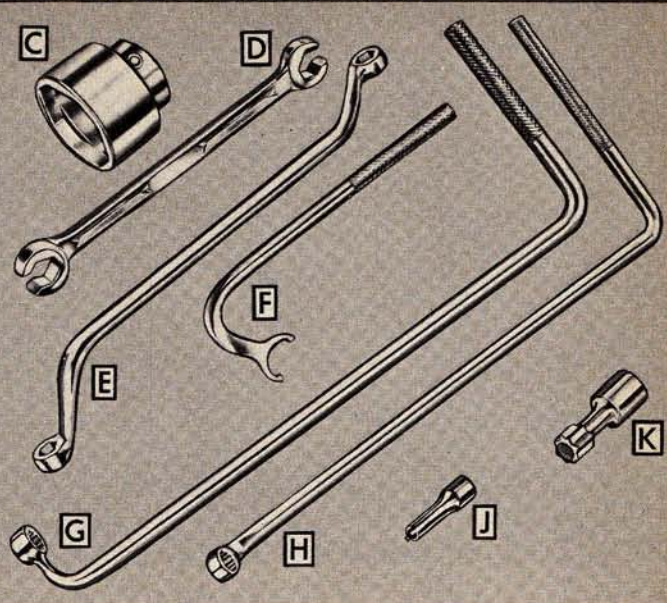
WA-28-24 Socket $\frac{3}{4}$ " hex.

WA-28-26 Socket $1\frac{3}{16}$ " hex.

WA-28-28 Socket $\frac{7}{8}$ " hex.

WA-28-30 Socket $1\frac{1}{8}$ " hex.

WA-28-8 Adaptor. $\frac{7}{8}$ " hex end fits the WA-28 Wrench, drive end fits any $\frac{1}{2}$ " square drive socket.



TORSION-AIRE HEIGHT LEVEL AND RIDE CONTROL GAUGE SET

B WAC-28 Magnetic Torsion Bar Height Gauge Set. Consists of two WAC-1B magnetic gauges in Styrofoam package. These fine gauges are quality built with a sturdiness that will give you long and accurate service. The aluminum magnet arms are long and tapered and are fitted with $\frac{1}{2}$ " diameter magnets that will fit the various models of Chrysler and GMC products with torsion-air suspension. The leveling bubble vial is easy to see and is attached to a 20" polished aluminum shaft. One magnet holder swivels and the adjustable height magnet holder slides to the correct position. Adjustments are made with the gauges in position.

WAC-1B Individual Magnetic Gauge.

SPECIAL SERVICE TOOLS FOR CHRYSLER BUILT CARS

C S-9365A Special Suspension Ball Joint Socket. For Dodge and Plymouth. $1\frac{1}{8}$ " diameter, $\frac{3}{4}$ " square drive.

D RXH-1517 Flare Nut Wrench. This wrench has "Boxocket" openings of $1\frac{1}{32}$ " and $1\frac{1}{16}$ " with slotted walls. The $1\frac{1}{32}$ " end will fit the hydraulic and oil line fittings of Chrysler cars. Overall length 6 $\frac{3}{8}$ ".

E B-1460B Brake Wrench for 1955-63 Chrysler products. A "Boxocket" with $\frac{3}{8}$ " and $\frac{1}{16}$ " single hex openings. $\frac{3}{8}$ " for brake bleeder valves, $\frac{1}{16}$ " for brake shoe eccentric bolts. The $\frac{1}{16}$ " end is offset to clear drag link arm and recessed plate on front wheels. 9 $\frac{1}{2}$ " long.

F S-9481A Adjusting Nut Wrench for emergency brake on all old and new model Chrysler products having an internal expanding hand brake adjustment. Designed to get past all obstructions such as the rear cross member and do the job quickly and efficiently. Chrome plated finish.

G S-9467B Chrysler Line Distributor Wrench.

A $\frac{1}{16}$ " double hex "Boxocket" for loosening or removing the distributor on Chrysler, Dodge, DeSoto and Plymouths. Reaches around distributor to do a fast job. Length from handle to wrench head is 11 $\frac{3}{32}$ ".

H S-9476A Distributor Wrench. $\frac{1}{2}$ " double hex for late model 8 cylinder Chrysler, DeSoto and Dodge. Has longer shank to clear wires around distributor. Air filter must be removed before bolts can be serviced. 12" long, 5" handle.

I S-9458 Dash Nut Socket. A pronged socket to fit panel switch and control nuts on Chrysler line cars. Outside diameter of nose $\frac{5}{16}$ ", length $1\frac{1}{8}$ ". $\frac{1}{4}$ " square drive.

J S-8186 $\frac{1}{2}$ " Double Square Male Socket. For servicing differential drain plugs on 1960-65 Plymouth Valiant and Dodge Dart also oil drain plugs on 1961-65 Oldsmobile and cylinder head bolts on some International Trucks. $\frac{1}{2}$ " square drive.

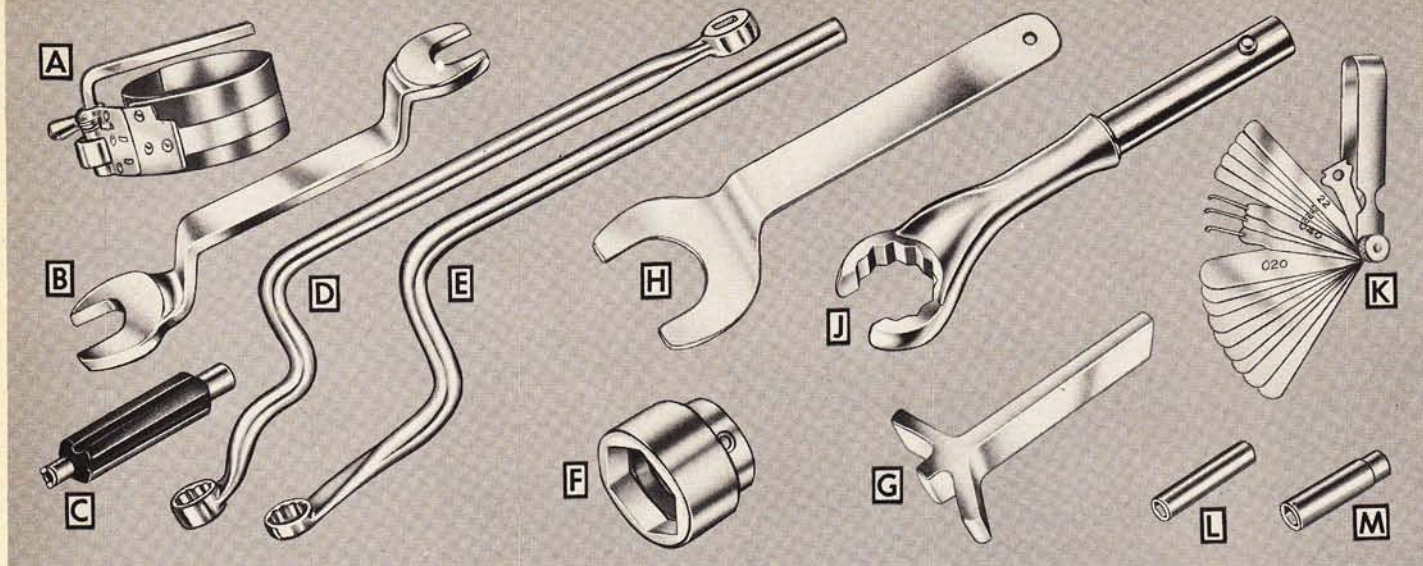
RADIATOR PRESSURE TESTER

ST-255 Radiator Pressure Tester. Tests the pressure cap and the cooling system for leaks on automobile engines. Practically all vehicles built in recent years use either one of four rated pressures — 4 lbs, 7 lbs, 13-14 lbs or 15-17 lbs . . . the dial of the tester has four clearly marked color bands and arrows to show the test range for each pressure system. Where the guaranteed winterizing plan is in effect, the use of the Pressure Tester is essential as it will help eliminate the chances of loss of coolant through leakage. Eliminate guess-work . . . service cooling systems faster and better . . . show your customer the true condition of the cooling

system in his car and save him from trouble on the road. Defective pressure caps can cause leakage . . . normal wear will not affect cams enough to affect the seal but a bent cam will cock the cap on the neck and affect the pressure spring compression causing the cap to leak. If both cams are bent down the cap will seal but at a higher pressure than the system calls for. This Tester has a 14" black rubber hose that connects the Radiator Adaptor to the Tester Body. The Pump has a black plastic knob handle. The entire unit comes in a sturdy black plastic carrying case and an illustrated instruction book is included.



SERVICE TOOLS FOR GENERAL MOTORS CORP., CARS AND TRUCKS



SPECIAL TOOLS FOR CHEVROLET, CORVAIR, CADILLAC, ETC.

A RCL-30 Piston Ring Compressor. Designed for use on the new type pistons used in V-8 engines where the distance from the top of the top ring to the bottom of the bottom ring is only one inch. Main belt is $1\frac{1}{2}$ " wide with $\frac{1}{2}$ " wide tension band of fine spring steel. Clutch grip holds the band compressed until you release pressure. Adapts to a $2\frac{1}{2}$ "-5" range of piston sizes.

B S-9552A Vacuum Modulator Control Wrench. For Chevrolet and Corvair. The special design of this wrench overcomes the limited working area problem to enable fast, efficient service. The narrow accessibility is no problem for this tool. Its $\frac{3}{16}$ " thin, offset heads provide plenty of working clearance. Wrench openings are $\frac{7}{8}$ " and 1" to handle both sizes of nut encountered. Tool is $8\frac{1}{2}$ " long, chrome finish.

C MD-17 Distributor Terminal Tool. For the removal, replacement and adjustment of points on Chevy 6-cylinder, Delco-Remy distributors. Black, $\frac{7}{8}$ " diameter, plastic handle has an $1\frac{1}{2}$ " socket at one end and a pronged socket at the other. Will also prove useful for tune-up work, ignition work, under-dash repairs, on radios, heaters, wherever an $1\frac{1}{2}$ " nut is used. 4" long.

D S-9545 Torque Adaptor. For castor-camber adjustments on Chevy (except 1959) with 348 cu. in. engine. Also other late models of Chevrolet, Chevelle, Pontiac Tempest, Buick Special and Olds 85. $14\frac{1}{4}$ " long, $\frac{1}{16}$ " double hex opening and $\frac{1}{2}$ " square drive opening to take TE-175 Torqometer. Set Torqometer dial at one-half desired torque for correct tension.

E S-6203 Castor-Camber Wrench. Needed for Chevy Corvairs. The length and special offset allows tool to be inserted under the fender to reach the adjusting bolt. Wrench has a $\frac{9}{16}$ " double hex "Boxocket" tapered to provide easy entry over the nut. Length is $10\frac{1}{2}$ " and the tool is cadmium plated.

F S-6202 Socket for servicing Corvair ball joint suspension. Has $1\frac{1}{8}$ " single hex opening and $\frac{3}{4}$ " drive. For use in removal and replacement of front end lower ball joints. Diameter $2\frac{1}{2}$ ", $1\frac{1}{4}$ " long.

G S-9604 Upper Control Arm Support Bracket for Chevy II. Replace ball joints and shock absorbers on Chevy II faster and safer with this handy unit. It prevents the front spring from stretching out when the car is raised, making the ball joint and shock absorber more readily accessible and more easily removed. It can be used on both sides of the car. Tool is $41\frac{1}{16}$ " long, cadmium finish.

H S-9548 Clutch Gear Bearing Retainer Wrench. For removing clutch gear retainer and oil slinger nut on Chevrolets and other GM products. Conventional tools easily damage this nut. This wrench prevents damage. $\frac{3}{32}$ " thick with $1\frac{1}{8}$ " opening. Overall length $8\frac{1}{2}$ "

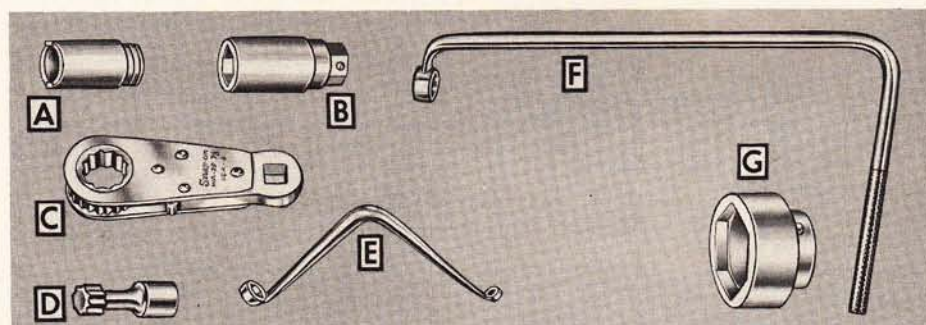
I WA-15 $1\frac{1}{8}$ " Castor Adjusting Flare Nut Boxsocket. Specially designed for adjusting castor on Chevrolet, Cadillac and Ford. The opening permits the wrench to slip over the strut rod while the one-inch offset permits adjusting the castor on Cadillacs where the adjusting nut is set back against the frame. No. 18A Tubular Handle for above wrench.

J FB-379 Chevrolet Feeler Gauge. Contains nine $3\frac{3}{8}$ " blades in thicknesses of .006, .007, .008, .010, .012, .013, .015, .016, .020; five finger blades .016, .018, .019, .020, and .022; three wire gap gauges .032, .035 and .040 and an electrode bender.

Sockets for Plastic Nuts. When self tapping screws project through the metal such as in the Chevy trunk or trim, the sharp points are protected by plastic nuts. Standard sockets are not broached deep enough for loosening or tightening the nuts and will damage them. These two sockets are made for this purpose, broached extra deep. Have $\frac{1}{4}$ " square drive.

L S-9549 $\frac{1}{16}$ " Hex, extra deep socket.

M S-9550 $\frac{3}{8}$ " Hex, extra deep socket.



SPECIAL TOOLS FOR BUICK, OLDSMOBILE, PONTIAC, ETC.

A S-9551 Windshield Wiper Socket. $\frac{3}{8}$ " square drive "Ferret" socket wrench for use on inner retainer nut and outer escutcheon nut on windshield wipers of Buick, Ford, Lincoln, Mercury and other cars. Also fits inner nut of Cam-O-Matic wipers. $2\frac{1}{8}$ " long, chrome plated finish.

B S-9706 $\frac{5}{8}$ " Single Hex Spark Plug Socket. For the 14mm. spark plugs used on Buick 400 and 430 cubic inch engines, and on a number of 1968 cars. A rubber insert grasps the plug knurling to reduce chances of dropping and damaging the plug. $\frac{3}{8}$ " square drive, $\frac{5}{8}$ " outside drive hex for socket wrench turning, $\frac{5}{8}$ " Flank Drive opening. Chrome plated.

C WA-24 Torque Adaptor Castor-Camber Wrench. This wrench is needed for making Castor-Camber adjustments on all late model Oldsmobile and Pontiac automobiles. It enables you to adjust accurately and prevent oversteering. Extensions may be used with it to work past obstructions when making the adjustments. The reversible ratcheting opening is $\frac{3}{4}$ " double hexagon. The square drive opening is $\frac{1}{2}$ ", overall length is $5\frac{1}{2}$ ".

D S-8186 $\frac{1}{2}$ " Double Square Male Socket. For servicing oil drain plugs on Oldsmobiles: also differential drain plugs on Plymouth Valiant and Dodge Dart, and cylinder head bolts on some International Trucks. $\frac{1}{2}$ " square drive.

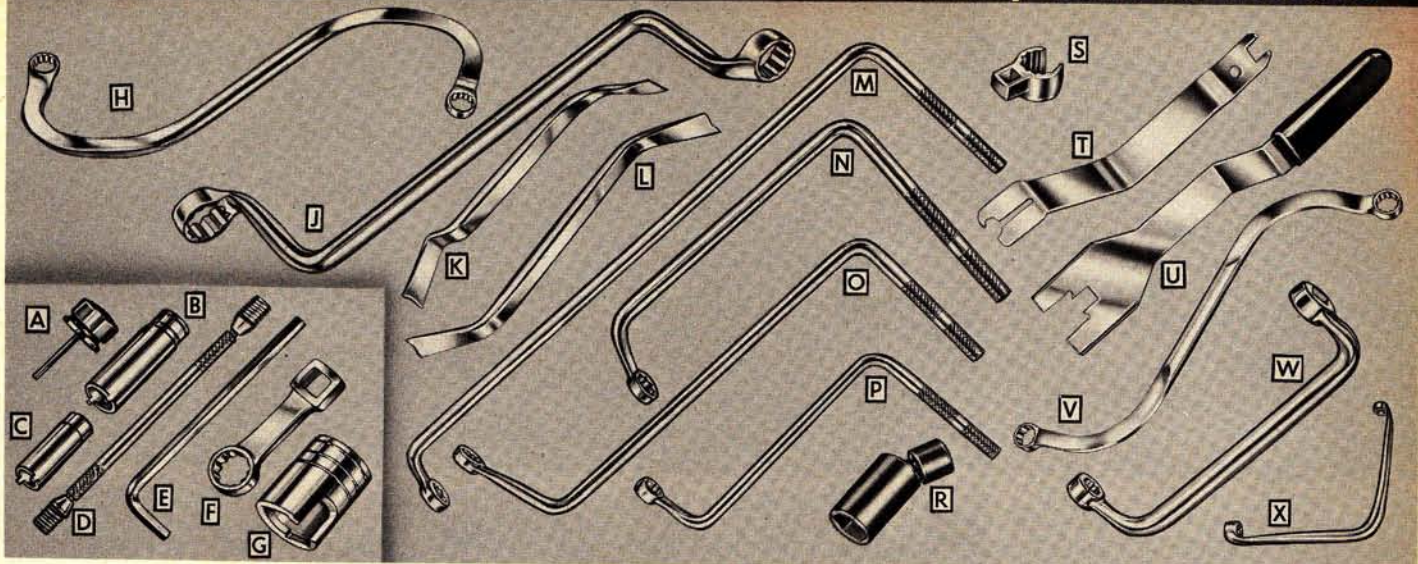
E S-8184 Brake Bleeder Wrench. Required for brake bleeder fittings on all GM cars. Wrench sizes are $\frac{3}{8}$ " and $\frac{5}{16}$ " single hex on 4" arms.

F S-9838 Distributor Wrench with $\frac{9}{16}$ " double hex for turning distributor hold-down bolts on 1961-66 Buick Special and V-6 Special and Olds F-85. Shaft of wrench is angled to clear obstructions. $11\frac{1}{8}$ " long.

Ball Joint Sockets for removing and replacing ball joints on 1961 General Motors products. Have $\frac{3}{4}$ " square drive female opening to take any $\frac{3}{4}$ " drive handle.

G S-9835 $1\frac{1}{8}$ " hex opening for front end upper ball joint of larger '61-62 Buicks.

SERVICE TOOLS FOR GENERAL MOTORS CORP., CARS & TRUCKS



(A) SDA-4 Point Adjustment Tool. A $\frac{1}{8}$ " Hex Bit for adjusting points on all Delco-Remy window-type distributors with external adjustment. The SNAP-ON MT-414C or similar dwell meter should be used when making the adjustment. Disconnect thermo-unit wire to permit access to housing window. Insert bit into adjusting screw and turn until dwell meter indicates proper degree. 2" overall length. $1\frac{1}{4}$ " shank.

(B) S-9540A Windshield Wiper Socket. For General Motors cars. This pronged socket fits the outer escutcheon nut and the inner-retainer or spacer nut. Socket is $2\frac{3}{8}$ " long and fits over the wiper shaft. Also removes speed nuts on rear brake drums of most cars with flange-type axles. $\frac{3}{8}$ " square drive.

(C) S-9605A Retainer Nut Socket. $\frac{1}{4}$ " square drive pronged socket designed to fit over the longer shafts and larger threads on light switches, windshield wiper controls and radio trim nuts on 1966 and later GM cars and trucks. The overall length is $1\frac{3}{4}$ ". The inside diameter of the socket end is $\frac{1}{2}$ " for a depth of $1\frac{1}{16}$ ", and total bolt clearance depth is $1\frac{3}{8}$ ". Can also be used on older models of GM cars and trucks. This effective tool for turning retainers and trim nuts saves time and minimizes the possibility of damage.

(D) GA-55A Head Locator. Remove head bolts and screw the dowels into bolt holes by means of the center shaft. Shaft unscrews itself when dowel is seated. Tapered tops of dowels extending above cylinder block serve as hinges in removing, and as locators when returning the head. The dowels hold the gasket in position to line up with the bolt holes. Shaft is 5" long. GA-55A consists of the shaft and two each of both dowels listed below.

GA-55-1 Shaft only.

GA-55-2 Dowel $\frac{1}{16}$ "—14 thread.

GA-55-3 Dowel $\frac{1}{2}$ "—13 thread.

(E) AWL-8 Caster-Camber Adjustment Wrench. For the hex head set screw adjustment on most GM cars. Wrench size is $\frac{1}{4}$ " with a length of $2\frac{1}{4}$ ". Handle length is $4\frac{1}{2}$ ".

(F) S-6206 Caster-Camber Adjusting Wrench for Corvair Van, Pick-Up, Greenbrier and Pontiac Tempest. 3" long with $\frac{1}{16}$ " double hex at one end and $\frac{1}{2}$ " square at other. Used with our 5" and 10" extension bars (SX-5 or SX-10) and our 15" or 18" nut spinners (SN-15L or SN-18L) it provides an easy method of turning the adjusting nuts.

(G) S-8187 Brake Cylinder Vacuum Check Valve Socket. This special socket enables fast and proper servicing of the vacuum cylinder check valve used in the power brake units of Oldsmobile, Pontiac, and Buick. Due to the location and plastic construction of the check valve, it is virtually impossible to service properly without a special tool of this nature. This socket efficiently handles both the angled and straight-type check valves encountered, and eliminates the possibility of damaging them. The tool has $\frac{1}{2}$ " square drive and a rust resistant, attractive chrome plated finish.

(H) S-9606 Door Hinge Wrench. $\frac{1}{2}$ " double hex boxsocket with special "S" shape to provide needed working clearance. Lets you adjust door hinge bolts on Chevy II, Chevelle, Olds F-85, Pontiac Tempest and Buick Special. Tool is 11" long, chrome plated.

(J) M-1310 Valve and Injector Wrench. $\frac{3}{8}$ " and $1\frac{1}{16}$ " double hex Boxsocket for GMC and Cummins Diesel engines. Wrench is deeply offset on both ends to provide clearance over the manifold and seat easily on the lock nut.

(K) B-1461 Brake Adjusting Tool for use on 1960-67 Corvair, Buick Special, Olds F-85, Rambler, and Tempest. One tang set at 29° with a wheel finder radius for rear brakes, the other tang set at 45° with special curve to clear ball joint on front brakes. $8\frac{1}{4}$ " long.

(L) B-1462 Brake Adjusting Tool for cars and trucks with trailing arms such as Chevy trucks, GMC trucks, standard Buick, Olds and Pontiac. Each tang set at 64° but in opposite directions for use on right or left hand side of car. $8\frac{3}{4}$ " long.

(M) S-8176 Distributor Wrench for Pontiacs and Oldsmobiles. Has $\frac{3}{16}$ " double hex. Reaches in between the distributor and fire wall on these cars where standard tool will not work. 16" long. Chrome plated.

(N) M-3515 Distributor Wrench. Special $\frac{3}{16}$ " double hex boxsocket for turning distributor hold-down bolts on GMC V-6 and V-8 trucks where limited access prevents use of standard wrenches. Tapered head helps provide clearance to seat over the bolt. Wrench is $8\frac{1}{4}$ " long. Chrome plated.

(O) S-9832B Buick and V-8 Chevy Distributor Wrench. $\frac{3}{16}$ " double hex Boxsocket for late models. 10" handle clears obstructions, $4\frac{1}{2}$ " offset handle. Head tapers from $2\frac{3}{64}$ " to $\frac{1}{4}$ " at outside edge making it easier to remove wrench after nuts are loosened. A time saver.

(P) S8173 Olds, Buick, Cadillac Distributor Wrench. $\frac{1}{2}$ " double hex "Boxsocket" opening. The long handle affords $6\frac{1}{16}$ " clearance over obstructions putting your hands out in the open where there is less danger of bumping the distributor during the final tightening. This tool will also prove useful on many other hard to reach jobs on various cars.

(R) SIMB-280A "Flexocket" with $\frac{3}{8}$ " single hex opening and $\frac{1}{2}$ " square drive. For use in making caster-camber adjustments on all 1961 through 1964 Oldsmobiles except the F-85. When some of the shims have been removed or are missing on these cars the added bolt clearance depth of this socket allows unit to seat properly on adjusting nut. Overall length is $3\frac{3}{16}$ ". Black finish.

(S) S-8185 $2\frac{3}{32}$ " Flank Drive Double Hex Crowfoot Wrench. Permits removal and replacement of turbine drive transmission cooler lines on late General Motors products. One half of the flarenut fitting is threaded into the housing and partially recessed preventing use of standard wrenches. This tool is used with suitable $\frac{3}{8}$ " square drive handle and extension to hold this part stationary while the other part is turned with a standard crowfoot wrench, handle and extension. This prevents twisting or possibly damaging the cooler lines. Head diameter $1\frac{1}{32}$ ", depth $1\frac{1}{16}$ ", length $1\frac{1}{16}$ ".

(T) S-9538A Door Handle Spring Remover. Designed especially for General Motors (except Cadillac) cars, it will work just as efficiently on Ford products and some other cars.

The straight open end opening is used for 1953-64 GM cars with the type door handles on which the inside flange construction of the handles was changed. The straight end of the S-9538A is inserted under and parallel to the handle. When the spring clip is engaged by the ends of the tool, a straight push snaps the spring out. For older models use the hook end.

(U) A-159 Door Handle Tool for General Motors Products (except Cadillac) and Ford Products. Tool is inserted under and parallel to handle, the tips of the tool engage spring clip and spread it just enough to permit removal of handle. 10 $\frac{3}{8}$ " long with $2\frac{1}{4}$ " wide shovel end.

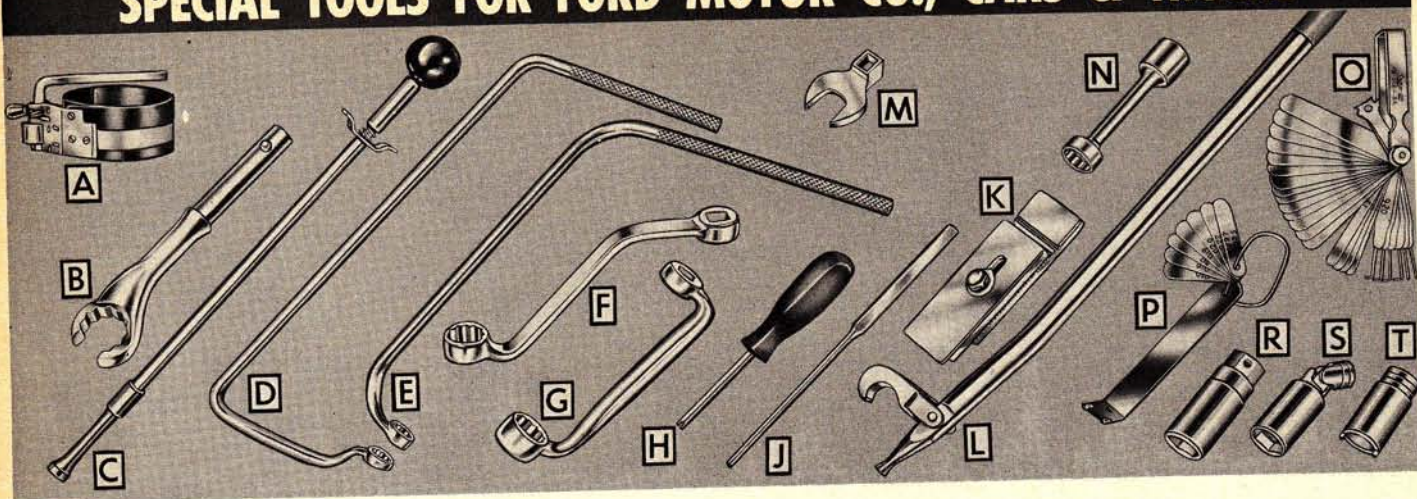
(V) S-9607 $\frac{1}{16}$ " Door Hinge Wrench. For late model General Motors cars. This wrench is curved to fit around obstructions to reach and turn door hinge bolts. The Boxsocket openings are offset opposite each other to provide the best working position for right and left door bolts... gives you two wrenches in one. Length approximately 11 $\frac{3}{8}$ ". Nickel-chrome plating.

S-9608 $\frac{1}{2}$ " Door Hinge Wrench. Needed for late model G.M. cars. Similar to above S-9607 wrench in appearance, size and finish. Because the above door hinge wrenches are especially designed for this specific job, you will get the job done easier and faster than by using makeshift combinations of flexockets, extensions, universal joints, etc.

(W) M-3504 Cylinder Head Wrench for GMC V-6 and V-8 Diesel engines. For use with any of our $\frac{1}{2}$ " square drive "Torquometers." Has $\frac{3}{16}$ " double hex wrench opening, directly in line with the $\frac{1}{2}$ " square drive. Wrench end is $2\frac{3}{32}$ " diameter. $8\frac{1}{8}$ " long.

(X) B-1463A Brake Bleeder Wrench. Has $\frac{1}{4}$ " and $\frac{3}{8}$ " single hex openings for use on the smaller type fittings on the majority of General Motors, Ford and other new Compacts. "L" shaped with $\frac{1}{4}$ " end slightly tapered to allow for clearance when removing bleeder screw in bleeder valve. Heads are offset thus making it unnecessary to remove wrench from valve fitting in order to attach hose.

SPECIAL TOOLS FOR FORD MOTOR CO., CARS & TRUCKS



**The Right Tool — In the Right Place — At the Right Time
Can Make Otherwise Difficult Jobs Both Easy and Profitable**

A RCL-30 Piston Ring Compressor for Ford, Mercury and Lincoln and most other late V-8 engines where distance from top of top ring to bottom of bottom ring is not more than 1". Main belt is 1½" wide with ½" tension band. Clutch grip holds band in compressed position. Tool adapts to pistons from 2½" to 5" dia.

B WA-15 1½" Caster Adjusting Flare Nut Boxsocket. Specially designed for adjusting Caster on Chevrolet, Cadillac and Ford. The opening permits the wrench to slip over the strut rod while the one-inch offset permits adjusting the caster on Cadillacs where the adjusting nut is set back against the frame.

Our No. 18A Tubular Handle (not included) fits the wrench shank and locks over the spring-loaded locking button. Assembled length is 22¼".

No. 18A Tubular Handle for above wrench.

C S-8690 Hydraulic Tappet Tool. Designed for removing the hydraulic tappets on late model Fords and most other cars. Where an accumulation of varnish or other deposits prevent removal with a magnet, this tool will prove extremely useful, removing the tappets quickly and easily. It is an expanding collet type tool, a plastic knob at one end operates the expanding collet at the other end. Two extensions or "ears" near knurled enable user to keep pressure applied. 14¼" long, net weight is 7 ounces.

D S-6405 Distributor Wrench for Ford Econoline Van, Ford Falcon and Comet. Specially formed to clear all obstructions. Has ½" special offset "Boxocket." Overall length is 11½". Chrome finish.

E S-8564B Distributor Wrench for making adjustments easily and safely on Lincoln and late model Ford and Mercury cars. The handle is offset at 110° angle to clear obstructions such as coil, distributor leads, etc. thus minimizing danger of shocks. Provides faster, more efficient service. Has double hex ½" opening at right angle to shank to clear wires and tubes. Overall length 11½".

F S-8686A Caster-Camber Wrench. ¾" double hex. For 1957-64 Ford, 1957-64 Mercury, and 1960 Edsel. Has double bend to provide clearance. ½" square drive designed to receive TE-175 "Torqometer." Set Torqometer dial at one-half of desired torque.

G S-8684A Cylinder Head Wrench. Needed for the larger engines used on late model Mercury and Lincoln. Use with a TE-175 or other ½" square drive torque wrench. Overall length is 5¾". Chrome finish.

H S-6404A Brake Spring Tool, for removing and replacing beehive-type brake shoe retainer springs used on Bendix-type brakes. Falcon, Comet and Lancer have this type of spring. The tip of this screwdriver-type tool is slotted to fit the retainer spring bracket. Downward pressure and a slight twist will remove or replace the spring. 6¼" long.

The special tools shown on this and other pages have been developed to help professional mechanics handle specific jobs with time and labor saving efficiency. In many cases it is next to impossible to do the job any other way, in others the use of standard wrenches and tools could involve difficult, time-taking and perhaps hazardous methods. Using tools properly designed for the job is one sure way to make your work easier and more profitable.

J PPC-107L Long Drift Punch, has straight section 4½" long for disassembly work on late model Ford standard 3-speed transmissions. Used to drive out long retaining pin that holds counter shaft and reverse idler shaft. Overall length 8".

K S-8697 Upper Control Arm Serration Breaker Tool. Needed to break loose the serrations on the upper control arm shaft from the frame when making caster-camber adjustments on the Ford Fairlane. The adjustable length of this tool adapts it to varying job requirements and eliminates the need for a set of different size tools.

L WA-171B Caster-Camber Adjustment Tool. Designed for use on Ford, Galaxie and Mercury cars. Slotted openings are provided in the car frame where the inner upper control arm shaft is bolted and ¾" holes are drilled in the frame next to the shaft bolts just to accommodate this type of tool. The hook is placed over the upper suspension arm inner shaft and the tapered end is inserted into either the front or rear ¾" hole. After loosening the shaft bolts, both caster and camber are adjusted by moving the shaft in or out as needed with the tool.

For caster adjustment, move either the front or the rear of the shaft as necessary to increase or decrease the caster angle. For camber adjustment, move both the front and rear of the shaft as necessary to increase or decrease the camber angle. Tighten both bolts to retain the adjustment. Tool is 18" long and 1½" diameter. Knurled handle provides a good grip. Tool is chrome plated.

M S-8696A Crowfoot Wrench for servicing the vacuum control unit on Ford Product transmissions. Has a ¾" open end. To be used with either the FX-6 6" or FX-11 12" Extensions and a Ferret Ratchet or Torqometer. Has ¾" square drive. Is 2½" long.

N S-8694 Cylinder Head Wrench for torquing certain hard-to-reach head bolts on Ford Fairlanes and other car models which have 221 cubic inch engines. The 1½" double hex wrench opening is directly in line with the ½" square drive. This permits a TE-175 "Torqometer" to be attached, keeping it in line with the head of the bolt to provide accurate torquing. Overall length is 4", outside diameter 1½". Chrome finish.

O FB-359 Ford Feeler Gauge. Contains four spark gap bent wire feelers, .025, .028, .030, .035; two straight wire feelers for voltage regulator cutout .017, and .030; five ignition finger blades .013, .015, .016, .020, .025; fourteen stepground blades .010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019, .018-.020, .019-.021, .021-.023, .023-.025, .024-.026, .025-.027, and an electrode bender.

P FB-308 Step Feeler Gauge Set. Pat. No. 2,817,151. For valve adjustments on Ford 6's and V-8's, Mercury and Ford trucks using Lincoln V-8 engine without hydraulic valve lifters.

Handle is bent to clear exhaust manifolds ... no need to bend the blade. Raised nub in the handle spring clip engages the blade hole and holds the blade securely. Blades are 2" long with a ¾" stepped end in following sizes: .008-.010, .013-.011, .014-.016, .015-.017, .017-.019, .018-.020, .020-.022, .025-.027.

R S-9704D Spark Plug Socket. 1½" (20.6 mm.) Flank Drive single hex socket fitted with a rubber insert to protect the plug. Rubber insert center hole grasps the knurl on the spark plug and centers it in the socket. Ribbed exterior holds the insert tightly in the socket. ¾" square drive and ¾" milled hex. Handles American and Bosch type spark plugs.

S-9704A-2 Rubber Insert only. Fits both the S-9704D and S-9704B-FU sockets.

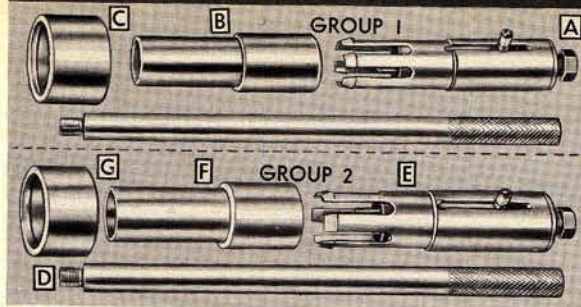
R S-9705A Spark Plug Socket. 1½" (20.6 mm.) Flank Drive single hex socket. Same as the S-9704D but has ½" square drive and ¾" milled hex.

S-9705A-2 Rubber Insert for S-9705A.

S S-9704B-FU Spark Plug Socket. 1½" (20.6 mm.) Flank drive, single hex. Use with speeder handle for fast spark plug service especially where obstructions occur. A rubber insert grips the spark plug firmly to minimize chance of dropping or damaging it. ¾" square drive, chrome finish. Handles American and Bosch type spark plugs.

T S-9551 Windshield Wiper Socket for use on Ford, Lincoln, Mercury, Buick and other cars. Has ¾" square drive and is used on the inner retainer or spacer nuts and outer escutcheon nut. Will also fit the inner nut of Cam-O-matic wiper. 2½" long, chrome finish.

BUSHING PULLERS AND DRIVERS FOR FORD PRODUCTS



Two Set Groups Available

First Set Group for 1949 and later Ford and Mercury passenger and some 1958 and later Chevrolet cars with small bushings.

Second Set Group for 1955 and later Ford Station Wagon, Thunderbird, Mercury, Lincoln and 1958 and later Ford passenger cars and Edsel with large type bushings.

These tools provide a safe, fast method of pulling and replacing the bushings and grease seals on the various automotive products of Ford Motor Company. They eliminate makeshift methods that could result in damage to the car.

Bushing Pullers. The jaws are inserted through the grease seal and between the bushing and the shaft. Spring tension expands the jaws so that the hook ends grip behind the bushing and they are held securely in this pulling posi-

tion by means of a sliding tube. Turn the screw with a wrench to remove both bushing and oil seal.

Bushing Drivers. Used to install new bushings and oil seals the safe, easy way. The handle screws into the driver head, the bushing is placed on the head and is driven into the shaft housing. A few light hammer blows on the handle does the job. The adaptor is then used on the head to seat the oil seal in position. Reversible adaptors handle either type of oil seal used.

Description	Group 1	Group 2
Puller Tool	A S-8672D	E S-8687A
Driver Set	S-8673B	S-8688A
Driver Head	B S-8673B-1	F S-8688A-1
Seal Adaptor	C S-8673B-3	G S-8688A-3
Driver Handle	D S-8673-2	H S-8673-2

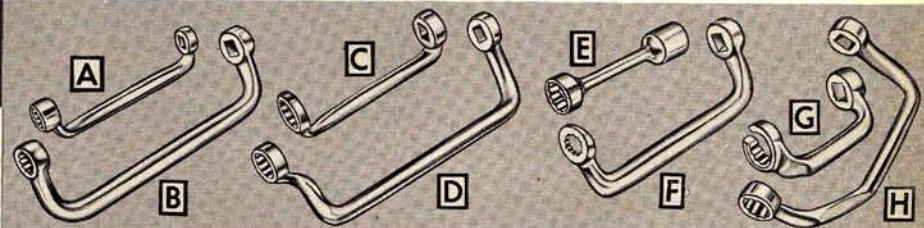
CYLINDER HEAD WRENCHES

A S-8684A Cylinder Head Wrench. Needed for John Deere and Oliver Tractors and for the larger engines used on Mercury and 1958-67 Lincoln. Has $\frac{1}{16}$ " double hexagon "Boxocket" opening. $5\frac{3}{4}$ " long, chrome plated. Use with TE-175 torque wrench.

B M-3504 Cylinder Head Wrench. $\frac{9}{16}$ " double hex opening. Designed for torquing head bolts on General Motors V-6 and V-12 diesel engines. The bolts located in the "valley" are partially obstructed preventing use of a standard wrench. Use with $\frac{1}{2}$ " sq. drive handle or "Torqometer." Overall length $8\frac{1}{4}$ ".

C M-4380 International Truck Cylinder Head Wrench. $\frac{3}{4}$ " double hex opening. Wrench wall is grooved to clear washer on the rocker arm. Reaches countersunk head bolts. $5\frac{1}{16}$ " long. Use with $\frac{1}{2}$ " square drive handle or "Torqometer."

D S-8663B Cylinder Head Wrench. $\frac{1}{16}$ " double hex opening. For Pontiac, Studebaker, Ford, Chrysler Windsor, Willys "F" Head 4 and 6 cylinder Jeeps and cars, VA series Case tractors and Ferguson tractors. Length is $7\frac{1}{16}$ ". $\frac{1}{2}$ " square drive.



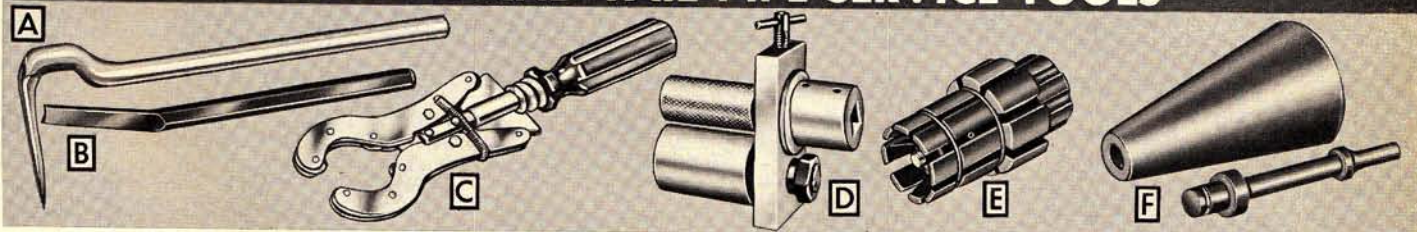
E S-8694 Ford Cylinder Head Wrench. $\frac{1}{16}$ " double hex opening for torquing head nuts on '62-'67 Fairlanes and models which have the 221 cubic inch engine. The shallow socket portion and narrow shank on this tool provide the necessary clearance to turn head bolts located under the exhaust manifold. Use with any $\frac{1}{2}$ " sq. dr. handle or "Torqometer." Overall length is 4". Tool is chrome plated.

F M-4201 $\frac{7}{8}$ " Mack Truck Diesel Cylinder Wrench. Head bolts located under the rocker arms are virtually impossible to turn with standard tools. This double hex boxocket has the head tapered from $\frac{15}{32}$ " thickness at the rear to $\frac{5}{32}$ " at the front... this and the "C" shape provide the needed clearance to service these head bolts from above the rocker arm assembly. $\frac{1}{2}$ " square drive, length $6\frac{3}{4}$ ", chrome plated.

G M-1401 Torque Adaptor. $\frac{1}{16}$ " cutaway double hex "boxocket" for torquing head bolts on Ford Dexta Tractors. The cutaway portion on the "Boxocket" end allows the unit to be placed on the head bolts without removing the fuel injectors. Use with any $\frac{1}{2}$ " sq. drive handle or "Torqometer." Overall length $3\frac{3}{4}$ ". Tool is chrome plated.

H S-9513C Cylinder Head Wrench. $\frac{3}{4}$ " double hex opening. For use on nuts under exhaust manifold on Chevy and Ford product engines and on White trucks, Twin Coach, Allis-Chalmers tractors, Oliver series 66, 67 and 88 tractors and Farmall "H" tractors. Made of $\frac{1}{2}$ " stock with $2\frac{1}{4}$ " offset for rocker arm clearance. Overall length is $6\frac{1}{2}$ ". $\frac{1}{2}$ " square drive.

MUFFLER AND TAIL PIPE SERVICE TOOLS



A GA-84A Muffler-Tailpipe Tool. Removes mufflers and tailpipes quickly, easily and safely. Simply insert "scooped" drop forged blade between muffler nipple and tailpipe, drive tool in by tapping on top of tool which breaks bond—tap tool out and tailpipe can be removed. $\frac{1}{2}$ " diameter, $11\frac{1}{4}$ " long.

D A-215 Muffler and Tail Pipe Tool. This sturdy, easily operated tool irons out any ridges or defects in the ends of these pipes and contributes to a tighter and safer installation. The smooth roller is inserted into the end of the pipe and pressure is applied to the outside knurled roller by means of the adjustable position screw. A $\frac{1}{2}$ " square drive ratchet or other handle is used in the driving head of the knurled roller to turn it and thereby "walk" the tool around the end of the pipe. A few turns around the end of the pipe with intermediate adjustments smooths out the pipe so that there are no dents or other defects allowing a tight, safe installation of the new pipe. Here's a tool that saves a lot of time.

B PC-32 Muffler Tool. A husky, rugged tool designed to make fast work of cutting muffler sleeves, exhaust pipes and material of this type. Will take a lot of pounding and abuse and still cut these heavy materials. The head is set at an angle to afford knuckle clearance. The curved bit curls the cutting chip away from the operator to aid in safe operation. Overall length is 10", made of $\frac{1}{2}$ " octagon stock.

E TC-55 Tailpipe Expander. Removes the indentations made by U-bolts when clamped securely on the tailpipe or muffler. These indentations must be removed when installing a new tailpipe or muffler on the old unit to permit one tube to fit over the other.

The sectional body of the tool expands when the $\frac{5}{8}$ " hex nut is turned clockwise, forcing the indentations back into the circumference of the pipe. Counterclockwise turns reduces the tool to allow removal. Does job quickly, safely and easily. Tool is 5" long, will handle tailpipes from $1\frac{1}{2}$ " to $2\frac{1}{2}$ ".

C TC-50B Adjustable Tailpipe Cutter. Fully adjustable to handle pipe from $1\frac{1}{2}$ " to $2\frac{1}{2}$ ". Simple to use, does excellent cutting job and can be used in restricted places. Four cutting wheels are riveted to the two circular shaped arms and spaced to give best results. Arms are mounted on threaded shaft which has a screw driver type handle to give firm, comfortable grip. Arms or jaws are opened and closed by turning handle. Instructions are packed with each tool.

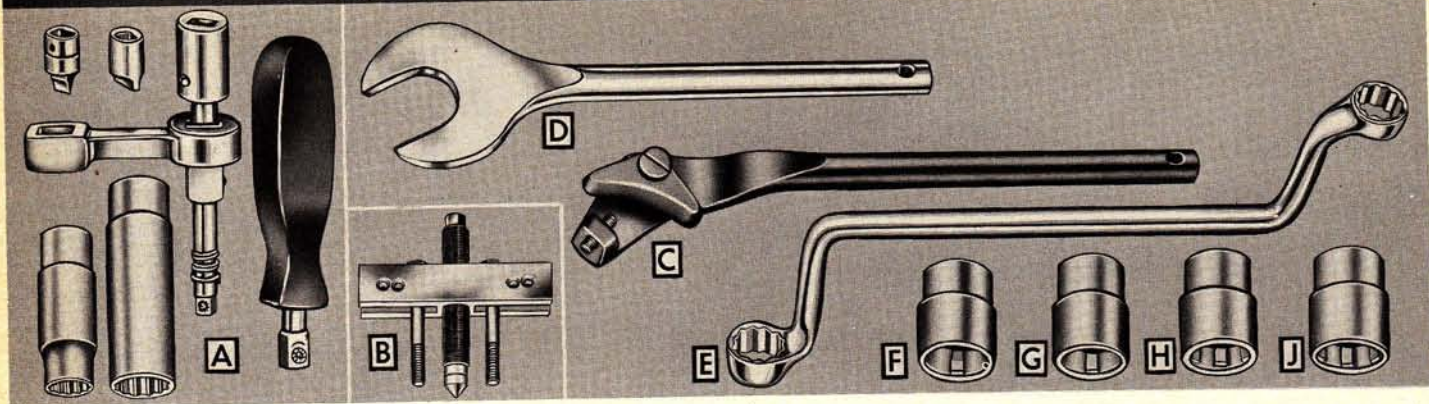
TC-50B-1 Cutter Wheel & Pin Set.

F PH-770 Muffler and Tail Pipe Expander Set. The set consists of a cone-shaped expander unit and a driver unit. The driver is designed to be used with the SNAP-ON Air Hammer (see page 136). It is attached to the Hammer and the drive end inserted into the cone which is positioned in the muffler sleeve or the tail pipe to be expanded. The powerful hammer blows will quickly press the cone into the tubing to expand it to the desired degree.

PH-77 Expander Cone. $5\frac{1}{4}$ " long, $1\frac{1}{8}$ " small end O.D., 3" large end O.D.

PH-79 $\frac{5}{8}$ " Diameter Driver. Can also be used with the A-158 Bushing Driver Set shown on page 111.

SPECIAL TOOLS FOR CUMMINS DIESEL



A ST-669 Torque Adapter Set. For use in loosening lock nuts, adjusting valves and injectors and torquing these units to manufacturers' specifications. Use with Torquometers TE-12 and TE-175 (see page 26). Set includes:

M-1302B-1 Handle Assembly.

TM-82 1/4" x .032" Sc. Driver.

M-1302A-5 1/2" x .062" Sc. Driver.

M-1302B-18 1/16" Double Hex Deep Socket.

S-241 3/4" Double Hex Deep Socket.

F-40A 3/8" Sq. Drive Plastic Grip Handle.

B ST-647 (order SNAP-ON CJ-83B) Timing Gear Puller. The pressure screw is 4 1/4" long. Two pulling studs furnished have 3/8"-16 threads and handle the majority of tapped timing gears ... also fit the holes in our CJ-950 Bearing Separator. (page 113.)

C ST-747 Engine Turning Tool. Needed to turn the engine over when adjusting valves and injectors, timing and many other adjustment operations. Turns the auxiliary pulley without causing damage to it.

D Fan Mount Nut Wrenches. For loosening and retightening the fan mount nut on Cummins Diesels in order to adjust the fan belt to the proper tension. Their slim design permits quick access to the fan nut for a quick adjustment. Each wrench is 15" long, head width is 4 1/4", head thickness 1 1/32", handle diameter 3/8".

ST-892 1 1/16" Fan Nut Wrench

ST-845 2" Fan Nut Wrench

ST-893 2 1/16" Fan Nut Wrench

ST-832 2 3/16" Fan Nut Wrench

ST-846 2 3/8" Fan Nut Wrench

ST-891 2 1/2" Fan Nut Wrench

E M-1310 Valve and Injector Wrench. 7/8" and 1 1/16" double offset Box-socket wrench designed for fast and efficient service of lock nuts when adjusting valves and injectors. The offset heads provide plenty of clearance. Tool is 13" long.

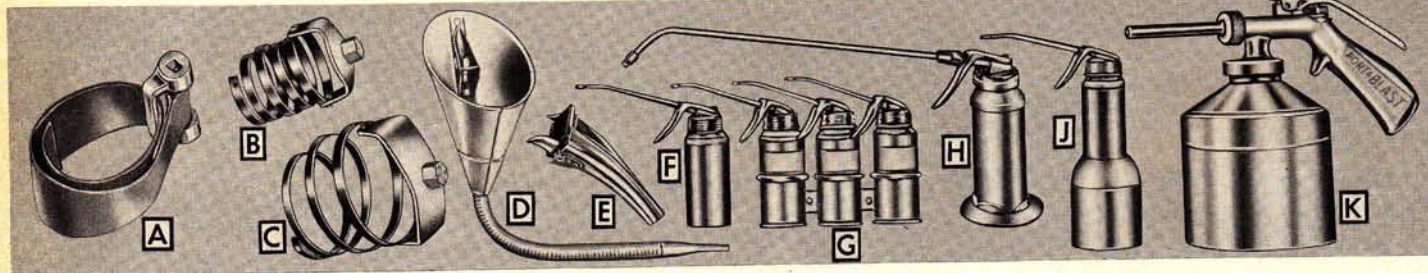
Injection Cup Sockets. For the removing and installing of injection cups on Cummins Diesel engines. Each socket has equally spaced shallow splines which slip over the splines on the injection cup to provide fast, safe and easy turning power. Sockets have 1/2" square drive.

F ST-650 3-spline for 1" cup.

G ST-651 3-spline for 7/8" cup.

H ST-934 6-spline for 7/8" cup.

J ST-933 6-spline for 1" cup.



OIL AND FUEL FILTER WRENCHES — OIL SPOUTS — OILERS — SAND BLAST GUN

A A-91B Strap Wrench. Pat. No. 2,995,965. Round or irregularly shaped objects from 1" to 6" diameter can be gripped, tightened or released with this tool. One end of housing has a 3/8" square opening and the other a 1/2" square opening to fit handles having these square drives. Housing is knurled on the outside to contribute to the gripping power and the wrench locks tighter as pressure builds. Heavy duty webbing strap. **A-91A-2 Strap only.**

Oil And Fuel Filter Wrenches. Designed to remove standard "spin-on" filters. Applied pressure is distributed over the full surface of the filter, preventing splitting or crushing the filter. After placing the tool over the filter use a 3/4" hex socket and suitable handle to apply turning pressure ... continued pressure grips the filter securely to break it loose and remove it. These tools will not replace filters.

B GA-177 Fuel Filter Wrench. For use on smaller filters on some Ford products.

C GA-178 Oil Filter Wrench. 5 3/4" long.

D GA-96 Automatic Transmission Filler Unit. Permits fast and easy operation when filling automatic transmissions and is equally useful when working on trucks, tractors, etc. The 8 1/2" wide oval funnel is made with one side two inches higher than the other to prevent overflow when held at an angle. The funnel has a can puncturing device attached and a filter screen set in the base. Total length is 30 inches including a 4 1/2" tapered nozzle and 14 1/2" of flexible cable hose. Made of steel with a coppered finish.

E GA-276 Flip-Spout. This new unit makes it amazingly fast and easy to open any can (it works like a beer can opener). You can use it on Plastic, Fiber, Tin-Plate and Aluminum, 1, 4 and 5 quart cans. The Flip-Spout gives you these advantages ... positive gripper for rim of can ... hardened steel cutting spear ... hardened steel hold-fast barb ... leak-proof gasket ... large 3/4" inside diameter opening for fast pouring ... extra long for hard to reach places ... nickel-plated.

F OC-5A Small Pressure Oiler. Capacity 5 ounces. A squeeze of the trigger delivers either a drop or a fine stream of oil. The long tapered spout is 5 1/2" long, its removable screw-on tip has a shoulder to facilitate lifting the spring loaded oiler caps. O.D. is only 1 1/8", finished in copper paint. Includes a base holder.

OCF-5 Small Pressure Oiler. Same as the OC-5A Oiler above but with a flexible spout to reach around obstructions.

OCH-5 Oiler Holder. (Not shown.) Fastens to wall or bench to hold OC-5A and OCF-5 oilers listed above.

G OC-40 Oiler Set. Consists of three 5 ounce pistol oilers, finished in aluminum, bronze, and red, complete with a triplet-type wall holder. Use the oilers for various types of lubricant, penetrant, or solvent and the colors identify the contents.

H OC-612 Generator Oiler. Holds six ounces of liquid and is equipped with a 12" long spout. The detachable cone tip is easily re-

moved for cleaning when necessary. Container has a flared base to hold the oiler in upright position on bench or shelf.

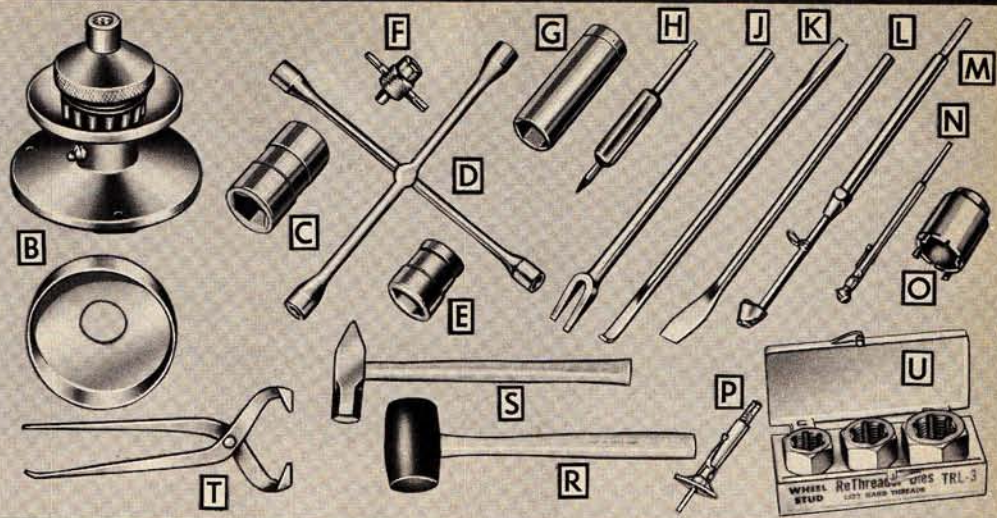
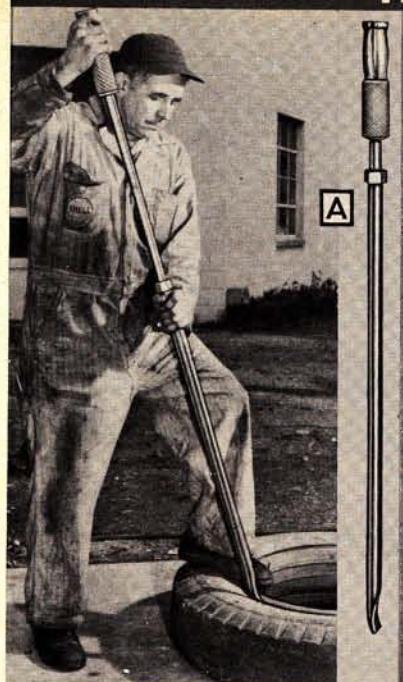
The oiler will prove very useful for oiling generators and other hard-to-reach places on new cars and machinery of all kinds where a long reach is needed. When working on engines, the long spout will keep the mechanic's hands clear of hot manifolds.

J OC-16 Pint Size Pressure Oiler delivers either a drop or continuous stream of oil or any non-rusting liquid. Top section is 2" for easy hand grip, bottom is 3" for greater capacity, also prevents tipping. Tip has shoulder to facilitate lifting spring loaded oiler caps. Aluminum lacquer finish.

K GA-133B Sand Blast Gun. For removing scale, rust, paint and dirt. Also makes practical liquid blast gun for liquid cleaning. Will also siphon liquids directly from drum using a siphon tube. Sturdily built to give long service. Gun body is zinc die cast. Uses air pressure of 60 to 150 p.s.i. Air consumption is 5.25 c.f.m. at 60 p.s.i., 6.65 c.f.m. at 80 p.s.i. and 8.06 c.f.m. at 100 p.s.i. Gun is equipped with one long wearing DIAMONITE nozzle and one hardened steel jet ... nozzle is 3/16" I.D. Capacity of container is one quart.

Important in the efficient use of the gun is the selection of the abrasive to suit the type and depth of surface texture desired and operating speed. The gun handles silica sand, metal shot, aluminous oxide abrasives, reflective materials, etc., in 16 and 1,000 grit sizes.

TIRE AND WHEEL SERVICE TOOLS



A TR-200 Tire Bead Remover . . . for bus, truck, and tractor tires. Chisel edge is quickly positioned . . . hand hold prevents it from turning under hammer shock. Sliding hammer weighs 13 lbs., this weight plus momentum of blow will break loose the largest tire bead.

Safety . . . a 2" clearance between top of tube and the hammer eliminates danger of smashing fingers.

Back-up feature . . . hammer shaft has a flanged bottom to prevent it from pulling out of the tube — this allows using the hammer to back the tool out should it get stuck between tire and rim. Length of stroke 16", 46" long, weight 18 pounds.

B A-180A Wheel Bearing Packer with dust cover. Make repacking bearings a fast, easy and profitable operation. Retainer nut is double cone shape with $\frac{3}{4}$ " neck. Outside of nut is knurled for firm grip. The bore is coarse threaded to within $\frac{1}{2}$ " of end of nut. The $\frac{1}{2}$ " unthreaded section allows nut to seat itself on screw.

C A-98 Wheel Lug Nut Socket Wrench has $\frac{3}{4}$ " single hex opening at one end and $1\frac{1}{16}$ " at other end with a $\frac{1}{2}$ " square drive inside the socket between the two wrench openings. When used with our impact drive wrenches extension SX-3 should be used. Socket is $2\frac{3}{4}$ " long with $1\frac{1}{16}$ " diameter.

D TR-105 Rim Wrench. Powerful, 4-arm speed tool for wheel removing. Socket ends have $1\frac{1}{16}$ ", $\frac{3}{4}$ ", $\frac{7}{8}$ " and $1\frac{1}{8}$ " hex openings, broached extra deep to operate over protruding bolts. Arms are 10" long.

E Budd Wheel Sockets. Heavy wall construction for impact wrench use. Each has a groove for locking ring. Black finish.

BW-482 Socket. $1\frac{1}{2}$ " single hex, $\frac{3}{4}$ " square drive, 5" long.

BW-626A Socket. $1\frac{1}{16}$ " single square, $\frac{3}{4}$ " square drive, 4" long.

IM-182R Locking Ring for above.

IM-182P Steel Pin for above.

IM-182PR Rawhide Pin for above.

BW-483B Socket. $1\frac{1}{2}$ " Single hex, 1" square drive, 3" long.

BW-726A Socket. Single square, 1" square drive, $2\frac{1}{4}$ " long.

IM-243R Locking Ring for above.

IM-243P Steel Pin for above.

IM-243PR Rawhide Pin for above.

F GA-143 Tire Valve Tool. One end is for removing or inserting the valve core, one end for tapping out the valve core threads, one end for chasing the outside threads and one end which acts as an air nozzle. Threaded on the valve stem it holds the stem in position and an air hose can then be used to partially inflate the tube.

G DW-402 Single Hex Socket. $1\frac{1}{4}$ " Single hex for "Dayton" truck wheel lug nuts. Heavy wall construction. 5" long to clear the wheel rim. Black finish.

IM-182R Locking Ring for above.

IM-182P Steel Pin for above.

IM-182PR Rawhide Pin for above.

H TR-104 Tire Valve Tool, in compact, 2 in 1 tire valve tool useful in all tire repair work. One end of the shaft has a tapered left-hand thread for quick, easy removal of broken valve cores. The other end is slotted to fit all standard valve core tips for easy removal and replacement of valve core. Plastic handle is $\frac{5}{8}$ " diameter, 2" long.

I Tie Rod Separators. Sturdy split wedge type tools designed for separating tie rods, ball joints, pitman arms, and knuckles on cars and trucks. Long handles put anvil end out in the open for hammer blows.

A-200 Separator. $1\frac{1}{16}$ " jaw opening, $\frac{7}{8}$ " thickness. 18" long.

A-201 Separator. 1" jaw opening, $1\frac{1}{16}$ " thickness. 12" long.

K TR-100 Rim Tool. Here's a tool that really does the job on split rims and rim lock rings used on older cars and practically all trucks. $19\frac{1}{2}$ " long, with ends $\frac{1}{16}$ " and $\frac{5}{8}$ " wide. One end is bent, the other straight.

L TR-102 Curved Tire Removing Tool for drop center tires. $1\frac{3}{8}$ " wide, 18" long. Has plenty of purchase without danger of injuring tire.

Tire Air Pressure Gauges Engineered and made to exacting standards. Equipped with 4 sided indicators to give maximum visibility and convenience. Two models are available.

M GA-246 Truck Tire Gauge calibrated in 1 lb. units up to 60 lbs. and 5 lb. units from 60 to 160 lbs. A rugged unit. Has a convenient ring for attaching to a chain or to hang gauge in handy location. 13" long.

N GA-241 Pencil Gauge for passenger cars and light trucks, calibrated in 1 pound increments up to 50 lbs. Has convenient pocket clip. Rounded head has a small button for depressing valve core. $5\frac{3}{4}$ " long.

O S-8695 Lug Socket. For removing front wheel assemblies on Chevy, Ford, Dodge, International, etc., 4-wheel drive trucks. Lugs fit into recesses and slots fit over $\frac{3}{32}$ " pins in the nut. $\frac{1}{2}$ " square drive. A must for this job.

P GA-599 Tire Tread Depth Gauge. Eliminates guesswork—shows exact amount of tread remaining. Has plastic body and aluminum probe and sliding gauge. Gauge measures to a depth of 1" in $\frac{1}{32}$ " calibrations. A pocket clip is attached to the body.

R BF-620A Rubber Mallet. Excellent for automotive body work, replacing hub caps, etc. Solid rubber head is $3\frac{3}{8}$ " long and $2\frac{1}{16}$ " diameter. Hardwood handle is $14\frac{1}{4}$ " long.

S BH-123 Cross-peen Hammer. Excellent for the repair work since it has plenty of "beef" to handle heavy tires. Also can be used for many other jobs such as straightening frames, bumper brackets, bumpers, puller work, etc. Has flat face on one end—other end tapers to edge. Hard wood handle. Weight, 3 lbs., 10 ounces.

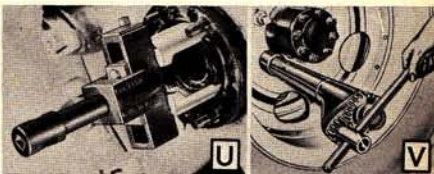
T GCP 10 Grease and Hub Cap Tool. One handle has a bent edge that fits behind the hub cap to pry it loose. Tapered jaws of the tool fit behind the crimped ridge of the grease cap to provide a firm wedging grip that easily removes the tightest cap.

U TRL-3 Left-Hand Wheel Stud Retreader Set. Renew threads on left-hand wheel studs quickly with this set. Turn the dies with any type wrench.

TRL-4320 Die. $\frac{7}{16}$ "-20 N.F., $1\frac{1}{16}$ " hex.

TRL-5020 Die. $\frac{1}{2}$ "-20 N.F., $\frac{3}{4}$ " hex.

TRL-5618 Die. $\frac{9}{16}$ "-20 N.F., $\frac{7}{8}$ " hex.



U AXLE NUT WRENCH FOR TRUCKS

Handles both hex and octagon sizes from $2\frac{1}{8}$ " to $4\frac{1}{8}$ ". Forged jaws slide back and forth in malleable cast iron base. Screw, with opposite threads move jaws in constant relationship to each other, thus always center on axle nut. Two bolts lock jaws in position, jaws fit over opposite corners of nut only and work even if nut is badly battered. The extension bar has a $\frac{3}{4}$ " male square drive to fit the base and a $\frac{1}{2}$ " female end to take a Speeder Handle. A cross hole receives the L-72H Bar handle. Speeder and Bar Handle are not included in the set.

AN-102 Axle Nut Wrench Set. Consists of the base, one set each of hex and octagon jaws, an extra adjusting screw, and AN-9 extension bar.

AN-100A Axle Nut Hex Wrench Set. Consists of the base, set of hex jaws, adjusting screw and AN-9 extension bar.

AN-130 Pair of Chevy-GMC jaws with screw.

L-72H Bar Handle

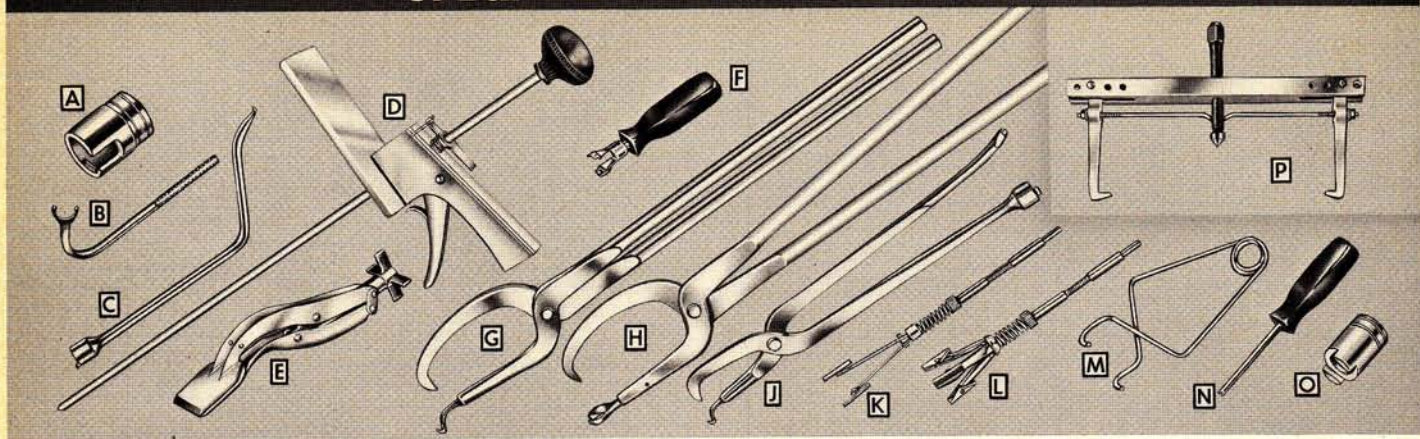
S-4 $\frac{1}{2}$ " Square Drive Speeder

V POWERENCH FOR BUDD WHEELS

GA-83 Powerench. A powerful geared wrench for mounting and removing Budd wheels on the road or in the shop. It's easy for one man to use, for once mounted on the work it supports itself leaving both hands free for the actual turning operation. An added safety feature against half-done jobs is provided in the unit as the outer hex nut cannot be tightened if the inner nut is still loose. Fits $1\frac{1}{16}$ " square and $1\frac{1}{2}$ " hex nuts.

GA-83-64 Adaptor. This unit is used in the hex drive of the Powerench above for 3 to 1 power ratio on Budd Wheel inner cap nuts.

SPECIAL BRAKE SERVICE TOOLS



CASH IN ON THE VAST BRAKE SERVICE MARKET AND PROTECT YOUR CUSTOMERS TOO

Promote Safer Driving By Suggesting Regular Brake Checks

A S-8187 Brake Cylinder Vacuum Check Valve Socket. Services the vacuum cylinder check valve used in the power brake units of Oldsmobile, Pontiac, and Buick. Due to the location and plastic construction of the check valve, it is virtually impossible to service properly without a special tool of this nature. This socket efficiently handles both the angled and straight-type check valves encountered, and eliminates the possibility of damage. $\frac{1}{2}$ " square drive, chrome plated.

B S-9481A Adjusting Nut Wrench for Chrysler Emergency Brake. The emergency brake adjustment on later Chrysler products is located where access is a problem. This wrench is designed to get past all obstructions and do the job quickly and efficiently. Can be used on all old and new Chrysler products having an internal expanding hand brake adjustment.

C BT-11 Brake Spring Tool. An efficient tool for removing or replacing Bendix brake springs but will work equally well on any spring that is attached to a post. Socket end is for removing and hook end for replacing the springs. Fast and easy to use. $9\frac{3}{4}$ " long.

D B-240 Brake, Accelerator Pedal and Hood Jack. This is an extremely convenient tool for use either as a brake pedal jack when bleeding the brakes or as a throttle pedal depressor, or as a hood jack. The action is similar to that of a caulking gun, but it has no notches. This permits finger-tip control of the r.p.m. The handle can be slid to any position on the shaft for fast placement and pressure instantly released when desired. The shaft is $28\frac{1}{2}$ " long.

E JT-48 Disk Brake Piston Compressor. For removing brake calipers from Plymouth, Chrysler, Dodge and other cars with Budd-type disc brakes. Raise car and remove wheel covers, wheel and tire assemblies and anti-rattle springs.

Disconnect brake line at caliper housing and install a $\frac{3}{8}$ "-24 plug. Remove bolts that attach caliper assembly to steering knuckle and steering knuckle arm. Remove caliper by slowly sliding caliper assembly up and away from braking disc. Remove lining pads. Insert piston compressor tool between piston insulator pads and turn knob to compress the pistons. Remove to bench for disassembling.

F B-1356B Brake Shoe Spring Tool. Designed to remove and replace brake shoe retaining spring caps on all model cars. Both the coil spring type and flat spring type caps can be removed safely and easily. For coil spring caps place tool over cap, twist and cap is easily removed. For flat spring type caps, place the special groove of tool over spring, exert pressure, give light twist and remove cap. Plastic handle. Metal parts chrome plated, $5\frac{1}{8}$ " long.

G 231 Truck Brake Spring Plier. For removing and replacing the heavy brake shoe return springs on some models of Hucks, Lockheed, Wagner and other trucks. This big, sturdy plier makes the job easier and safer for the mechanic. $20\frac{1}{4}$ " long, its ample leverage requires very little effort to stretch the spring.

231-3 Replacement Hook. For above plier.

H No. 331 Truck Brake Spring Plier. For fast, easy replacement of heavy double duty return springs. Designed for trucks with air brakes and wide shoes with a double web and a pin to hold the spring. The hook fits into the web rivet hole and a specially-shaped cup adaptor fits the double return spring. The adaptor is replaceable if damaged.

No. 331-3 Cup-shaped Adaptor for above plier.

I No. 131A Brake Spring Plier. A combination tool that can be used for the removal and replacement of Bendix, Lockheed and other hydraulic and mechanical brake springs. The steel hook on the jaw is replaceable if necessary. Handles provide socket-type spring remover and hook end replacer. Overall length $13\frac{3}{4}$ ". Rust resistant plating.

SMALL CYLINDER HONES

For deglazing and honing cylinders. Excellent for brake work, instantly recondition master cylinder. Used also on small engines such as Volkswagen. Speed up new ring break-in. Stones carried on free-swinging, self-centering shoes. Screw controls tension. Flexible cable eliminates need for perfect line up. Use with $\frac{1}{4}$ " electric drill. Flexible cable not guaranteed. Lubricate while honing, brake fluid is satisfactory.

K JT-64 two-arm hone for $\frac{1}{2}$ " to 2" diameter cylinders with 2 medium grit stones, each $1\frac{1}{8}$ " long.

JT-64-1 Set of 2 medium grit stones for JT-64.

JT-64-14 Set of 2 fine grit stones for JT-64.

L B-200 for $\frac{3}{4}$ " to 2" diameter cylinders, with 3 medium grit stones, $\frac{3}{16}$ " x $1\frac{1}{8}$ ".

B-201 Set of 3 medium grit stones for B-200 and old CF-63, each $1\frac{1}{8}$ " long.

B-202 Set of 3 fine grit stones for B-200 and old CF-63, each $1\frac{1}{8}$ " long.

B-203 Set of 3 coarse grit stones for B-200 Hone and old CF-63 Hone, each $1\frac{1}{8}$ " long.

FOR HONING DISK BRAKE CYLINDERS

Use the B-200 cylinder hone (above) and the following stones and baffle disks. Install baffle to protect the stones before honing bore. After honing flush caliper with alcohol. Do NOT increase bore diameter over .002 inch.

JT-63-34 Set of three $\frac{3}{4}$ " fine grit stones.

JT-63-38 Set of three Baffle Discs, 1.625", 2.00" and 2.375" diameters.

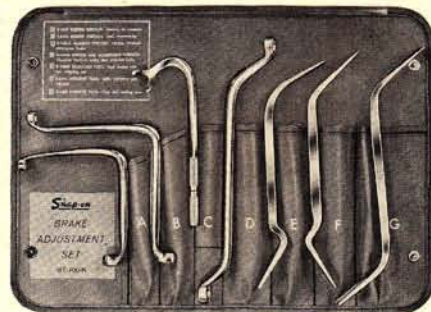
M BL-41A Set of Four Cylinder Clamps. Hold the pistons in place when replacing or installing brake shoes. The semi-circle ends hold the pistons at the edges, are turned out 90° without the prongs projecting into the cylinder thus possibility of damage is eliminated. Easy to apply with no chance of leaving clamp on brake cylinder when reassembling. 6" long, closes to $1\frac{1}{4}$ ".

N S-6404A Brake Spring Tool. Designed to remove and replace bee-hive type brake shoe retainer spring found on Bendix-type brakes. Insert tool through hole in web of brake shoe and place slot on retainer spring bracket. Apply pressure downward, twist and spring is removed. Replaced in same way. $6\frac{1}{4}$ " long. A real time saver.

O B-1357 Speed Nut Socket for use on brake drum speed nuts on Ford, Olds, Chevy, Rambler and most other cars having flange type axles. Protruding portions of socket fit recesses of the nut for safe turning. Has $\frac{3}{8}$ " square drive to fit "Ferret" Handles. $1\frac{1}{8}$ " long, diameter 1". Chrome plated. A real time saver.

P CJ-100A Brake Drum Puller. For removing rear brake drums from late model Fords and GM products that have flange type axles. To remove the drum lock the jaws of the CJ-100A on the outer rim of the drum, center the pressure screw on axle and apply pressure. The clamp bolt is used to lock the jaws on the drum to help prevent possibility of slipping. If drum is solidly frozen to backing plate do not force the puller or you may damage the drum... apply heat to the drum to help free it. Jaws may be placed at various widths to cover drums in the 9" to 16" range. The CJ-100A consists of the following.

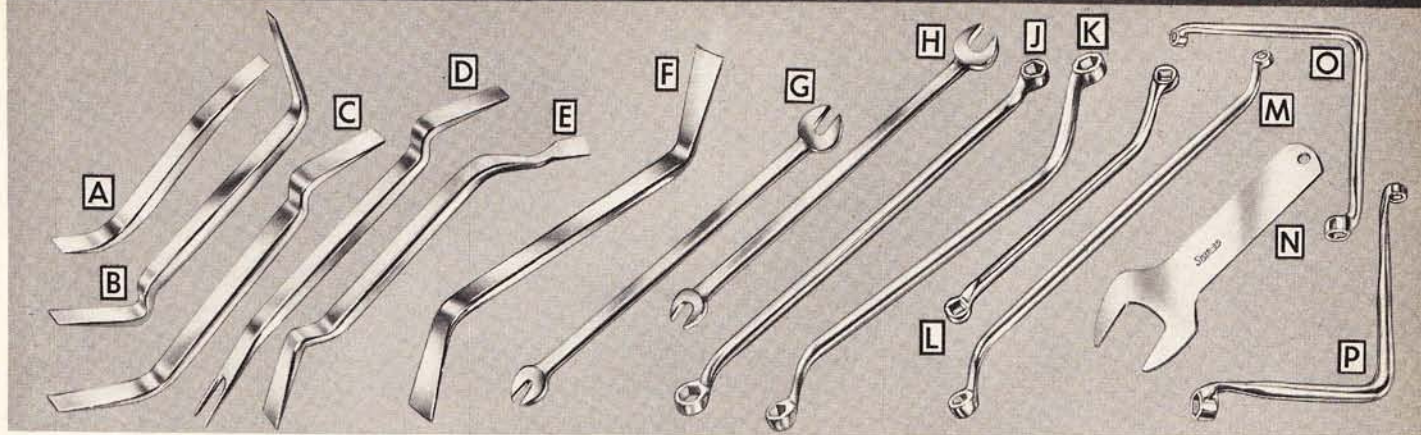
CJ-83-2 Pressure Screw
CJ-84-16 Expansion Plug
CJ-85-4 Clamp Washer (2)
CJ-100-1 Jaw Yoke
CJ-100A-2 Clamp Bolt
CJ-105-11 Jaw Pin (2)
CJ-282-1 Puller Jaw (2)
ESD-1053 Clamp Nut (2)



BT-700A-K BRAKE TOOL SET

BT-700A-K Set. Contains seven popular adjusting tools to handle a majority of brake adjusting service jobs. The tools come with a special red Vinyl Kit Bag, C-76, with a separate pocket for each tool. Each pocket is lettered to agree with descriptive listing of each tool printed on the kit. Tools included are B-1463, S-8184, S-9481A, B-1460B, B-3404B, B-1461, B-1462A. The S-9481A is described on this page — the others on page 101.

SPECIAL BRAKE SERVICE TOOLS



A S-9523 Chevy Brake Adjusting Tool. A star-nut turning tool necessary for brake adjusting on Chevy trucks with overload springs. Different angles at each end take care of the clearance problems. Blades are $1\frac{1}{2}$ " wide. Tool is $5\frac{1}{4}$ " long.

B S-9153B Pontiac Brake Adjusting Tool. Works around or through interfering parts such as frame fittings, etc. $\frac{1}{2}$ " wide blades do an accurate, fast, and easy job. Tool is $7\frac{1}{8}$ " long.

C B-3404B Brake Adjusting Tool. Services Bendix self adjusting brakes and other brakes using star adjusting nut except those on Chevrolet. The tool is $8\frac{1}{16}$ " long. Blades are $1\frac{1}{2}$ " wide and $\frac{1}{32}$ " tip thickness.

D S-8353B Bendix Brake Adjusting Tool. Speeds work on late model Bendix brakes with rubber plug in adjustment opening. Insert the pronged end under the plug, pry it out and leave it in the prong for fast replacement. Tool is $8\frac{1}{8}$ " long.

E B-1461 Brake Adjusting Tool. For 1960-67 Corvair, Buick Special, Olds F-85, Rambler and Tempest. One end has wide set tang at 29° angle for rear brakes, other end of 45° angle for front brakes. $8\frac{1}{4}$ " long.

F B-1462A Brake Adjusting Tool. For rear brakes of cars and trucks with trailing arms such as Chevy trucks, GMC trucks, standard Buicks, Olds and Pontiacs. Tang at each end set at 68° but in opposite directions, one for right hand side and other, left hand side. $8\frac{1}{2}$ " overall, chrome plated.

G B-1351A Bendix Brake Wrench. Designed for eccentric cam on Bendix Internal Brakes and gives the two most needed sizes of openings, $8\frac{1}{2}$ " long, $\frac{1}{4}$ " head thickness. $\frac{3}{16}$ " and $\frac{1}{4}$ " openings.

H S-8652A Ford Brake Eccentric Wrench. Fits the brake eccentric adjusting screw on 1939 through 1948 Ford passenger car and truck hydraulic brakes. Just right for fast easy work. Length of tool is $8\frac{1}{2}$ ". Heads have $\frac{1}{16}$ " and $\frac{3}{16}$ " openings.

I B-1456A Brake Bleeder Boxocket. A single hex offset Boxocket with $\frac{3}{8}$ " and $\frac{1}{16}$ " openings for bleeding hydraulic brake systems found on GM and most other passenger cars. The single hex openings and $9\frac{1}{2}$ " length combine to make this job easier and faster.

K B-1460B Brake Bleeder and Adjusting "Boxocket." For late model Chrysler products. Single hex offset wrench with $\frac{3}{8}$ " and $\frac{1}{16}$ " openings. The $\frac{3}{8}$ " end is for use in brake bleeding work and it will fit most passenger cars. The $\frac{1}{16}$ " end is used when adjusting brake shoe eccentric bolts. The offset on this end will clear drag link arm and recessed backing plate on front wheels still leaving room for the hand to fit between tire and wrench. Wrench is $9\frac{1}{2}$ " long.

L B-1464 Taunus Brake Wrench. This new tool is ideal for servicing brakes on Taunus. Both ends of this "Boxocket" have 10mm square broaching. One end is straight with the handle and the other is offset to provide necessary working clearance.

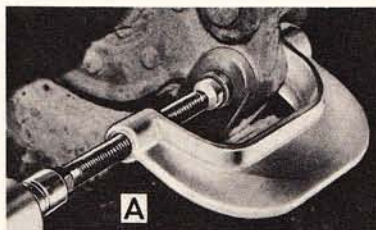
M B-1458A Brake Bleeder Boxocket. A special offset "Boxocket" with $\frac{3}{8}$ " and $\frac{1}{4}$ " single hex openings. $\frac{1}{4}$ " size is needed for many late model cars. The wrench will handle most cars and light trucks. $9\frac{1}{2}$ " length and offset heads provide leverage and clearance from backing plate, brake lines, etc.

N S-5901 Volkswagen Wheel Bearing Wrench. 27mm open end set at 15° for use on front wheel bearing assemblies. Two thin nuts are used, one locking the other. We recommend that you have two of these wrenches—one to hold the inner nut the other to turn the outer nut. $6\frac{1}{2}$ " long.

O B-1463A Brake Bleeder Wrench. Especially designed for smaller fittings on majority

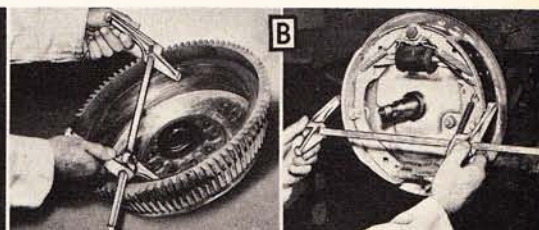
of GM, Ford and other new compacts. "L" shape provides leverage. The $\frac{1}{4}$ " single hex end is tapered to allow for clearance in removing bleeder screw. The $\frac{3}{8}$ " single hex end fits standard and some compact cars.

P S-8184 Brake Bleeder Wrench. Required for the fittings on all GM cars. Each arm is approximately $4\frac{1}{2}$ " long. The single hex openings are $\frac{3}{8}$ " and $\frac{1}{16}$ ".



A TRUCK BRAKE PIN REMOVER

CJ-108 Truck Brake Pin Remover. Designed to remove the large pins which secure brake shoes, this tool presses them out smoothly and safely with controlled power. The pins are often rusted and difficult to remove in other ways, but easily pressed out by the power exerted by this tool. After lining up the tool with the pin and tightening the screw, rap the screw end with a hammer to jar the pin and use a $\frac{3}{4}$ " wrench to turn the screw. An impact wrench will speed the job.



B BRAKE DRUM GAUGE

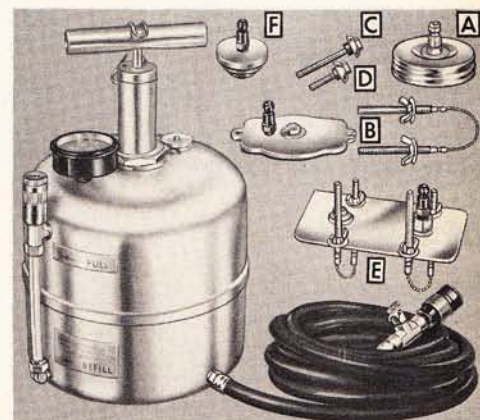
B-300 Brake Drum Gauge. Two gauges in one—checks brake drum wear limit and brake shoe-to-drum clearance. Calibrated from 7" thru 18" to handle just about every car and truck brake drum in use. Calibrations are in 1" divisions with correct .060" or .080" dimension allowances for reworking the drum. Use the long legs to determine need for grinding... the short legs to measure drum I.D. before replacing shoes and then flip the gauge over and check and adjust the brake shoe diameter so the long legs slide over the linings.

BRAKE BLEEDER SET

BB-202B Set. Bleed brake systems quickly, easily and safely with this all new set. It features a Brake Bleeder Tank with a separate safety valve, pressure gauge, hand pump, covered filler opening and a sight gauge. These features make it virtually impossible to over-pump the tank (the safety valve is set at forty pounds of pressure) or to overfill it (there is always at least two inches of air space due to the filler neck extending 2" into the tank).

Note: Two major causes of accidents with most brake bleeder equipment are over-filling and excessive air pressure, these causes are eliminated with this set. Pump is longer than shown and has a stroke of $6\frac{1}{2}$ inches.

For convenience, this Set includes an eleven foot hose which enables the tank to be on the floor or your roll cab while the hose is attached to the brake master cylinder, even when the vehicle is up on the hoist. This permits you to bleed all four brakes at once, without having to lower the car after bleeding each brake in order to check the level of fluid and air pressure left in the tank. Three adaptors included handle most of your brake service work.



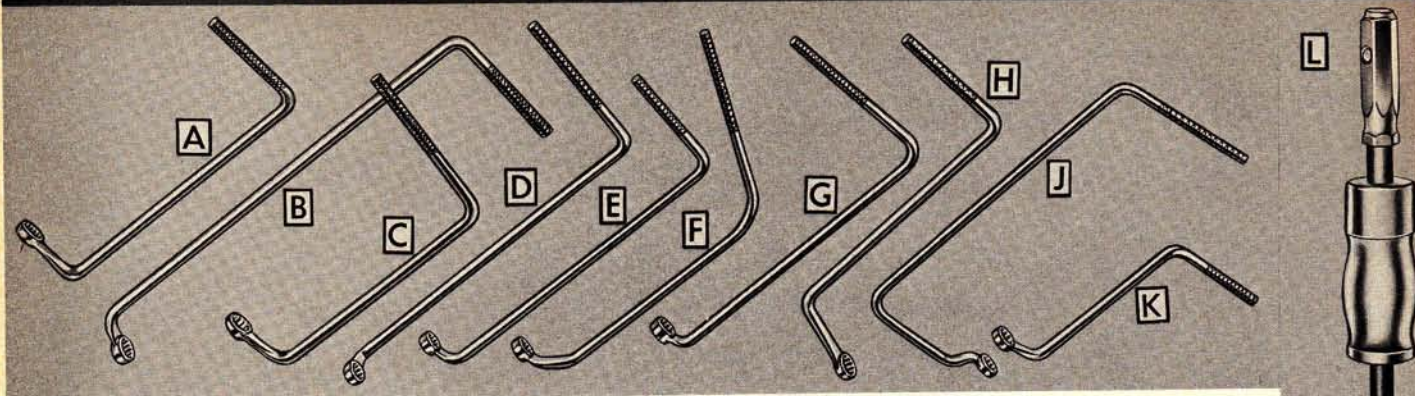
SET CONTAINS THREE ADAPTORS

- A BB-214 Adaptor for Ford & Falcon.**
- B BB-218A Adaptor for Chrysler, GMC & Chevrolet Trucks Plus '64 GM's and Disc Brake Units.**
- C BB-204-1 Long bolt for BB-218A.**
- D BB-204-2 Short bolt for BB-218A.**
- E BB-221A Adaptor for all dual cylinder units plus Ramblers.**
- Optional Adaptor—Not in Set**
- F BB-203 Universal Adaptor.**

SPECIFICATIONS

Brake Fluid Capacity: 1 Gallon
Normal Air Pressure: 22 P.S.I.
Maximum Air Pressure: 40 P.S.I.

SPECIAL TOOLS FOR DISTRIBUTOR SERVICE



A S-9707 Distributor Wrench for Cadillac, Ford and Mercury. $\frac{1}{2}$ " Double hex Boxocket that is a must tool for late model Cadillac distributor hold-down bolts, also fits most Ford and Mercury autos. The $10\frac{1}{8}$ " length and $1\frac{1}{8}$ " length of offset for the Boxocket opening lets you get past obstructions to turn that hard-to-reach bolt.

B S-8176 Distributor Wrench for late model Pontiac and Oldsmobiles. Has $\frac{1}{8}$ " double hex. Reaches in between the distributor and fire wall on these cars where standard tool will not work. 16" long. Chrome plated.

C M-3515 GMC Distributor Wrench. A $\frac{1}{8}$ " double hex Boxocket for turning the distributor hold-down bolts on GMC V-6 and V-8 trucks. Distributor location on these vehicles prevents the use of standard wrenches. This special wrench provides necessary clearance to do the job easily and quickly. Wrench is $8\frac{1}{4}$ " long and has knurled handle. Chrome plated finish.

D S-9476A Distributor Wrench. $\frac{1}{2}$ " double hex for late model 8 cylinder Chrysler and Dodge. Has longer shank to clear wires around distributor. Air filter must be removed before bolts can be serviced. 12" long, 5" handle. Also useful on Ford Super Duty Trucks.

E S-9467B Chrysler Line Distributor Wrench. A $\frac{1}{8}$ " double hex "Boxocket" for loosening or removing the distributor on Chrysler, Dodge, Plymouths, Dart and Valiant. Reaches around distributor to do a fast job. $11\frac{23}{32}$ " from handle to head.

F S-8564B Distributor Wrench for making adjustments easily and safely on late model Lincoln, Ford and Mercury. The handle is offset at 110° angle to clear obstructions such as coil, distributor leads, etc. Has double hex $\frac{1}{8}$ " opening at right angle to shank to clear wire and tubes. Overall length is $11\frac{1}{8}$ ".

G S-9838 Distributor Wrench. $\frac{1}{8}$ " double hex for turning the distributor hold-down bolts on late model Buick Special and V-8 Special, and on Oldsmobile F-85. The opening and the knurled handle are parallel, but the shaft is angled to clear obstructions. $11\frac{1}{8}$ " inches long.

H S-9832B Buick and V-8 Chevy Distributor Wrench. $\frac{1}{8}$ " double hex Boxocket for late models. 10" handle clears obstructions. $4\frac{1}{2}$ " offset handle. Head thickness tapers making it easier to remove wrench after nuts are loosened.

J S-6405 $\frac{1}{2}$ " Double Hex "Boxocket" Distributor Wrench for Ford Falcon, Ford Econoline and Comet models. Head is tapered. Shaft is 11" long with $4\frac{3}{4}$ " handle and $4\frac{1}{4}$ " offset with boxocket.

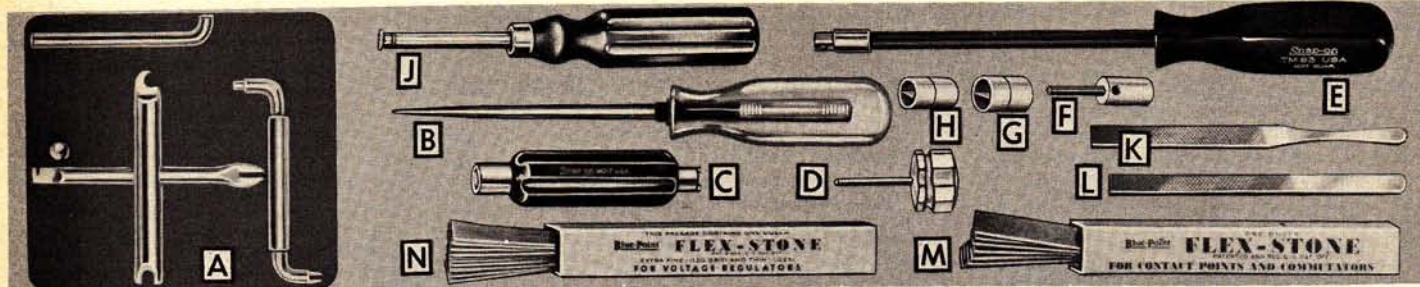
K S-8173 Olds, Buick, Cadillac Distributor Wrench. $\frac{1}{2}$ " double hex "Boxocket" opening. The long handle affords $6\frac{1}{16}$ " clearance over obstructions putting your hands out in the open where there is less danger of bumping the distributor during final tightening. Useful on other jobs.

L CJ-106 Distributor Puller. Designed for pulling distributors that are rusted or frozen. Engineered primarily for Ford products but will work on most other cars.

Remove the distributor hold down bolt, the wires and vacuum line. Insert the puller fork under the distributor housing, then bump it out with the hammer.

Forked head is $3\frac{1}{4}$ " long and $2\frac{3}{8}$ " at its widest point. Serated fork tips are $\frac{3}{16}$ " thick. Slide shaft is 23" long and the hammer weighs about $3\frac{1}{2}$ lbs. Slide shaft and hammer from our CJ-97C Axle Puller, CG-270H, CG-273H or CJ-105A Pullers can be used with the CJ-99 Puller Head Assembly.

CJ-99 Puller Head Assembly
CJ-105-4 Side Hammer Shaft
CJ-97-3 Slide Hammer



A TK-50B Tune-O-Kit. Handles aligning and adjustment of the voltage regulators and distributors on most cars. Set contains following three tools, in plastic kit bag.

TK-30 Ignition Point Aligning Tool. For Delco and Autolite distributors.

TK-32A Voltage Regulator Tool. Adjusts most types of voltage regulators.

TK-34 Ford Voltage Regulator Tool. For voltage regulator adjustments.

B SSTP-5 Spark Tester, neon type with sharp tapered prod and shock-proof plastic handle for use on ignition systems with shielded plugs. Tubes replaceable.

NT-2 Neon Tube, for above tester.

C MD-17 Distributor Terminal Tool. For the removal, replacement, and adjustment of points on Chevy 6-cylinder, Delco-Remy distributors. Black plastic handle has an $1\frac{1}{32}$ " socket at one end and a pronged socket at the other. Overall length is 4".

D Point Adjustment Tools. For adjusting points on Delco-Remy window-type distributors with the external adjustment. A SNAP-ON dwell meter should be used when making the adjustment. Disconnect thermounit wire to permit access to housing window. Also needed for adjusting regulator point spring tension.

SDA-3 $\frac{3}{32}$ " Hex Driver. 2" long.

SDA-4 $\frac{1}{8}$ " Hex Driver. 2" long.

E TM-63 Insulated Flex-Shaft Driver. Has $\frac{1}{4}$ " square drive to fit the sockets listed below. Use it with TMA-4 $\frac{1}{8}$ " Hex Head Cap Screw Driver to service Delco-Remy window-type distributors. The insulation prevents shorting the coil by accident while adjusting points. Use it with the TM-83A and TM-84 for carburetor work on most cars.

F TMA-4 $\frac{1}{8}$ " Hex Head Cap Screw Driver.

G TM-83A $\frac{1}{32}$ " x $23/64$ " blade Screw Driver Socket.

H TM-84 $\frac{1}{32}$ " x $7/16$ " blade Screw Driver Socket.

J ACD-12 Distributor Cleaning Brush. Wire brush cleans terminal connections on distributor and coil. $5\frac{1}{4}$ " long, handle 4", wire diameter .012".

K HB-5 Ignition Point File. A fine double-cut tungsten file for spark plug and distributor points and other contact points.

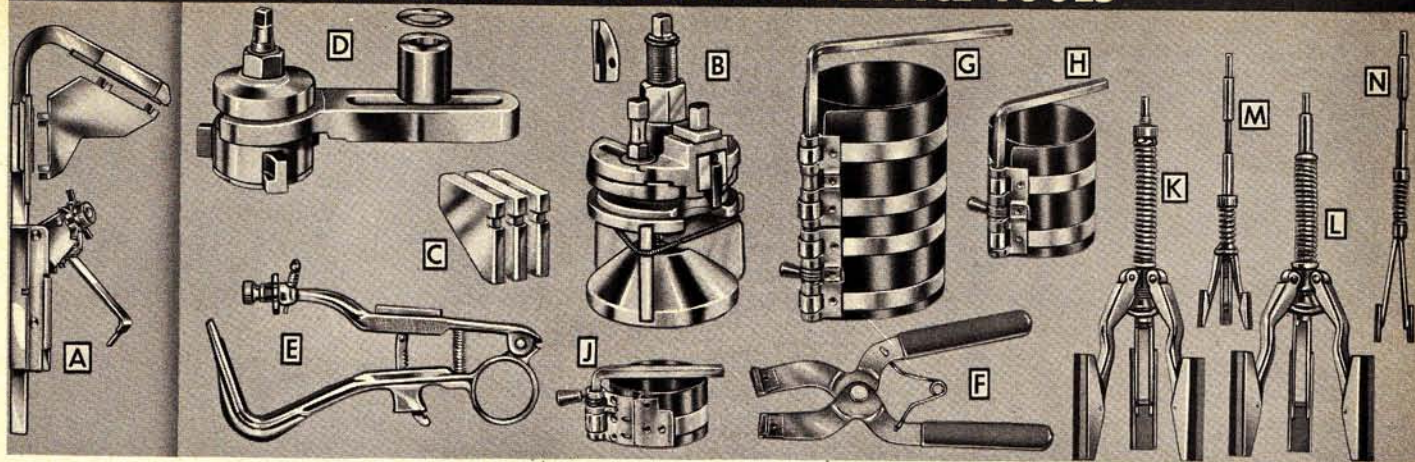
L HB-2470 Voltage Regulator Point File. An extra thin file with a very fine cut. It is 5" long, $\frac{1}{16}$ " wide and .015" thick.

Flex-Stones. For truing ignition points. Economical—long lasting—flexible—nonconductors of electricity—plastic material imbedded with highly vitrified abrasive.

M GA-3 Flex-Stones. (.050" thick.) Pkg. of 12.

N GA-43 Thin Flex-Stones. (.025") For Voltage Regulator work. Package of 12.

PISTON AND CYLINDER SERVICE TOOLS



A RING GROOVE CLEANER

RC-510 Ring Groove Cleaner. Removes carbon quickly and easily. . . . Works on all size pistons from 1" to 5" in diameter.

A rack and pawl mechanism lets you adjust the tool for different size pistons by simply squeezing the handle and sliding the handle position up or down the main frame. Releasing the handle locks the cutter assembly in position and a strong coil spring keeps the blade in the ring groove.

When positioned, simply rotate the tool around the piston to remove carbon—one or two revolutions will usually suffice. With very soft carbon deposits, it is best to release some of the spring pressure by squeezing the handle during the cleaning operations.

Two cutter wheels—each with five blade sizes—are included. The RC-510-1 has blade sizes of: $\frac{5}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", $\frac{5}{32}$ " and $\frac{3}{16}$ ", while the RC-510-2 has sizes of: $\frac{1}{16}$ ", $\frac{5}{16}$ ", $\frac{3}{32}$ ", $\frac{5}{32}$ " and $\frac{3}{16}$ ". The RC-510-3 plate adaptor, which wedges firmly into the frame of the tool, enables servicing pistons from 1" to $2\frac{3}{4}$ " diameter.

RC-510-1 Replacement Cutter Wheel.

RC-510-2 Replacement Cutter Wheel.

RC-510-3 Replacement Adaptor Plate.

RC-510-6 Replacement Knurled Nut.

B CYLINDER RIDGE REAMER FOR NEW ANGLE BLOCK ENGINES

3" to 5" Capacity

WR-30 Ridge Reamer designed to work equally well on both the new angle block engines as well as those with straight blocks.

Of multiple piece, die cast construction, this unit consists of two main assemblies and a threaded feed screw. The bottom assembly consists of a cone shaped base with 3 milled slots, three jaws (which fit into the slots), and a plate located on top of the jaws. The jaws are notched and are encircled by a spring, which applies tension on the jaws to keep them aligned during use. The top assembly consists of a feed plate, a carbide cutter which is attached to a cutter carrier, cutter locator button, cutter eccentric, driver nut and a cutter carrier locking screw. The feed screw threads through the center of both assemblies and has very fine threads for accurate adjustment.

The tool is designed so that it automatically centers itself in the cylinder. An impact wrench may be used in conjunction with the unit on extreme cases, however, a deep $\frac{1}{16}$ " socket and handle plus a $\frac{3}{8}$ " open end wrench or "Boxocket" is all that is needed in most instances.

Complete instructions are packed with each tool.

WR-30-1 Replacement Cutter Bit.

C WR-30-15. Set of jaws to adapt the WR-30 Ridge Reamer for use on Falcon, Corvair and some other compacts. Simply slip out the standard jaws and replace them with these special jaws.

D CYLINDER RIDGE REAMER FOR CARS AND TRUCKS

2-9/16" to 6" Capacity With the
Extra Set of Cutter Blades

WR-25 Ridge Reamer. An expanding cutter type reamer with two sets of blades giving a capacity of $2\frac{9}{16}$ " to $4\frac{3}{8}$ ".

Three expanding cutters act as self-centering agents and are so shaped that only the top portion of the blade does the actual cutting while the bottom section acts as a guide to prevent chattering and undercutting. The reamer is supported in the cylinder by means of the clamp which is slipped over a stud and bolted to the cylinder block. Blades are adjusted by means of the square head screw on top of the tool and the reamer is turned by means of the large hex on top of the housing. Complete with wood case.

Replacement Blades Furnished

WR-25-3 Set of three blades $3\frac{3}{4}$ "- $4\frac{3}{8}$ "

WR-25-4 Set of three blades $2\frac{9}{16}$ "- $3\frac{3}{4}$ "

Optional Blades Available

WR-25-5 Set of three blades $4\frac{3}{8}$ "- 6 "

E RING GROOVE CLEANING TOOL

RC-500 Ring Groove Cleaning Tool. Removes the hardest carbon deposit without injury from pistons with $\frac{5}{16}$ ", $\frac{3}{32}$ ", $\frac{1}{8}$ ", or $\frac{3}{16}$ " ring grooves and diameters from $2\frac{1}{2}$ " to 5". Flange in the hook fits into groove and holds piston securely yet allows it to turn freely. Cutter blade quickly changed. Self aligning feature prevents cutting into groove walls. Threaded guide is for use on Chrysler products and other pistons. Jaws are easily locked or released.

RC-500-1 Replacement Cutter Blade.

RC-500-11 Cutter for $\frac{1}{4}$ " and $\frac{5}{16}$ " grooves.

F PISTON RING SPREADER

PRS-8A Piston Ring Spreader. Here is a tool for easy installation of piston rings from $\frac{3}{16}$ " to $\frac{1}{4}$ " thick. Its use assures minimum breakage or distortion of rings and does the job quickly. Simply slip the ring opening into the jaws of the tool and close the handles to expand the ring. The tool is copper plated with red plastic handles. 7" long.

PISTON RING COMPRESSORS

Clutch control holds the tension bands in position as the piston is inserted into the cylinder. "V" beads on the lower edge of the belt keep the tool from entering the cylinder. $\frac{1}{2}$ " wide spring steel bands equalize the tension over the width of the belt, so that the ring assembly, no matter how stiff, may be compressed into the grooves until flush with the piston.

The RC-40C may be used upside down when working on Chevrolet, Mercury, Edsel, and Ford Trucks with angled block.

G RC-150A Compressor. 4-band model. $3\frac{1}{2}$ " to 7" capacity, depth $6\frac{1}{2}$ ".

H RC-40C Compressor. 2-band model. $2\frac{1}{8}$ " to 5" capacity, depth $3\frac{1}{2}$ ".

I RC-50C Compressor. 2-band model. $3\frac{1}{2}$ " to 7" capacity, depth $3\frac{1}{2}$ ".

J RCL-30 Compressor. 1-band model. $2\frac{1}{2}$ " to 5" capacity, depth 1". Unit may be taken apart and removed from the connecting rod on applications where the cylinder is pressed down over the piston.

IMPROVED GLAZE BREAKERS

These new, improved Deglazing and Resurfacing Hones are designed for fast, accurate honing of cylinders in diameters from 2" to 7". A spread limiter limits hone diameter for general work or expands hone for large diameter cylinders. . . . permits fast cylinder to cylinder change. The spring action gives the right pressure for positive glaze breaking using high or low speed $\frac{1}{4}$ " or $\frac{1}{2}$ " chuck electric drill. These hones are self-centering and self-bottoming. A powerful arm design keeps abrasive pads accurately in line. *Note:* Lubricate while honing, use kerosene or light oil. Flexible shafts and abrasive stones are subject to abuse and should be used with care.

K ADJUSTABLE TENSION MODELS

CF-60C. For 2" to $5\frac{1}{4}$ " diameter cylinders. Furnished with eighteen abrasive cloths, 3" long. Cloths are easily changed.

CF-60CS. For 2" to $5\frac{1}{4}$ " diameter cylinders. Furnished with (3) 3" medium grit stones.

CF-62CS. For 2" to 7" diameter cylinders. Furnished with (3) 4" medium grit stones.

JT-69. For truck work, 6" to $11\frac{1}{2}$ " diameter cylinders. Furnished with three 4" medium grit stones.

L PRESET TENSION MODELS

CF-61. For 2" to $5\frac{1}{4}$ " diameter cylinders. Furnished with (3) 3" medium grit stones.

CF-62A. For 2" to 7" diameter cylinders. Furnished with (3) 4" medium grit stones.

REPLACEMENT ABRASIVE CLOTHS

For CF-60C and old style CF-60 Hones

CF-60C-1. Set of 18, 3" medium grit cloths.

CF-60-1. (For old style CF-60.) Set of 18, 2" medium grit cloths.

REPLACEMENT STONE SETS

For CF-60CS and CF-61 Hones listed above or old style CF-62. Can also be used on CF-62A, CF-62CS and JT-69 above.

CF-61-12S. (3) 3" Medium grit stones.

CF-61-14S. (3) 3" Fine grit stones.

CF-61-100. (3) 3" Coarse grit stones.

For CF-62A, CF-62CS and JT-69 Hones listed above or old style CF-62.

CF-62-12S. (3) 4" Medium grit stones.

CF-62-14S. (3) 4" Fine grit stones.

SMALL CYLINDER HONES

For brake cylinder work and small engines such as Volkswagen, etc. Lubricate while honing—brake fluid is satisfactory.

M B-200. For $\frac{3}{4}$ " to 2" diameter cylinders. Furnished with 3 medium grit stones, each $\frac{3}{16}$ " x $1\frac{1}{8}$ " long.

B-201. Set of 3 medium grit stones for B-200 and old CF-63, each $1\frac{1}{8}$ " long.

B-202. Set of 3 fine grit stones for B-200 and old CF-63, each $1\frac{1}{8}$ " long.

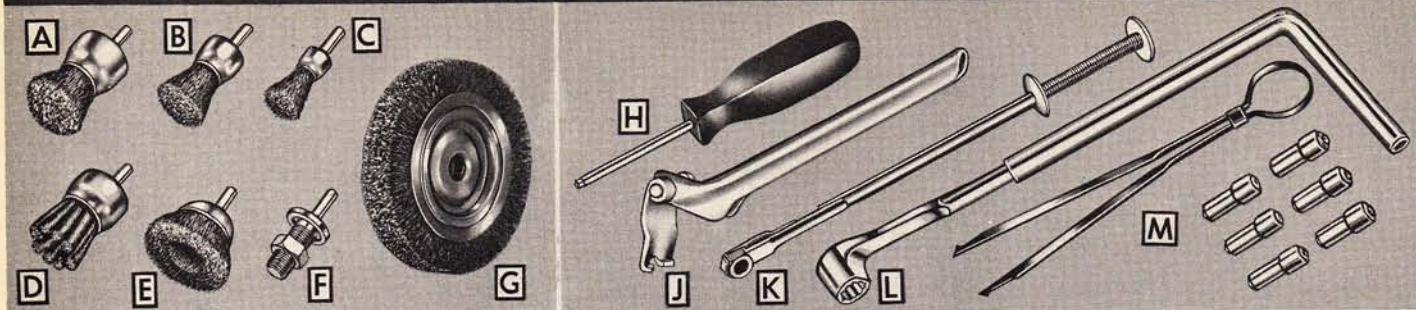
B-203. Set of 3 coarse grit stones for B-200 Hone and old CF-63 Hone, each $1\frac{1}{8}$ " long.

N JT-64. A 2-arm hone for $\frac{1}{2}$ " to $2\frac{1}{4}$ " diameter cylinders. Furnished with 2 medium grit stones, each $1\frac{1}{8}$ " long.

JT-64-1. 2 medium grit stones for JT-64.

JT-64-14. 2 fine grit stones for JT-64.

MISCELLANEOUS SPECIAL SERVICE TOOLS



CARBON BRUSHES AND ARBOR ADAPTORS

Crimped Wire Brushes. The following three sizes are made from high tensile crimped wire of .020 gauge to give long service life and satisfactory operation at high speed. Each has a 1/4" diameter stem enabling their use in an electric drill. They are fine for removing carbon from cylinder heads, valve parts, etc.

(A) AC-2 1 1/8" Brush Diameter.

(B) AC-3 3/4" Brush Diameter.

(C) AC-4 1/2" Brush Diameter.

(D) AC-7A Spiral Twist. Brush diameter 1 1/8". Has tightly twisted spirals of high quality .020" steel wire. 1/4" stem. Will quickly remove heavy deposits.

(E) AC-240 Cup-Type. Brush diameter 1 1/8". Excellent for cleaning up tire rims and scuffing up inside of tire before cementing patch. Crimped .013" steel wire looped into hub. 1/4" stem.

(F) A-24 Arbor Adaptor. 1/4" diameter shank. This unit adapts your electric drill to light grinding and wire brushing. Arbor is 1/2" diameter. Use with brushes and wheels up to 4" diameter.

(G) AC-414 Wire Brush. 4 1/4" diameter, 3/4" width of face. Made of .014" wire. Suitable for use on above arbor adaptor.

SQUARE TIP SCREW DRIVER

(H) S-8698 7/64" Square Tip Screwdriver. Specially designed for servicing cab panels in trucks made by Ford, Kenworth and other manufacturers. Recessed, square-headed screws are used to hold truck-cab roof and side panels in place on many new trucks. These fasteners require a special driver of this nature to service them. This driver has a 7/64" square tip—the size needed for insertion into these screws. Its blade length is 2 3/8". The contour grip handle enables a firm yet comfortable grip and is virtually unbreakable.

WINDSHIELD ARM REMOVER

(J) JT-85 Windshield Arm Remover Tool. Just insert prongs under the wiper arm barrel, squeeze handle and wiper arm in a plier action to remove the complete arm assembly from the wiper barrel. Provides a fast, easy removal of all standard car wiper arms.

NUT HOLDER

(K) JT-410 Nut Holder. The spring loaded sliding grip holds any nut from No. 4 thru 1/2"—hex or square. It holds them securely in a "V"-shaped jaw (as illustrated) while the bolt is tightened. Strong tension spring grip and 10" length helps overcome problem of starting nuts in limited access places.

FAN BLADE WRENCH

(L) S9470C Fan Blade Wrench. This 1/2" double hexagon socket-type wrench lets you remove those hard-to-get-at fan blades quickly and efficiently without skinning your knuckles. The sliding sleeve type handle gives a minimum length of 11 1/4" and extends to 13 1/4". This permits clearance over various length fans and helps where shrouds are used. It slips easily into the restricted areas between radiator and fan to seat on the blade nuts. Simply remove the fan belt, position the wrench on one of the fan blade nuts, hold the wrench in place with one hand and turn the fan blade with the other hand.

HEAD ALIGNMENT DOWEL SET

(M) CF-83 Head Alignment Dowel Set. Drop the dowels in place, lay gasket over them and set the head in place without danger of deforming the gasket or need to slide the head or gasket back into place. Then start head bolts in other holes. Use the retriever to pull the dowels. Use whenever fast drying sealants are used on the head gasket. Set consists of retriever, three 1/16" and three 1/2" bolt dowels.



RIVET TOOL AND KIT

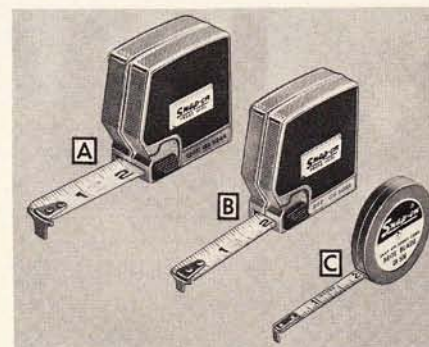
Make tight, strong, vibration-free bonds in sheet metal, plastic, fiberglass, masonite, aluminum, etc. . . . no buckling, dimpling, fracturing, distortion or marred surfaces.

HP-2 Rivet Tool. With four interchangeable nose pieces to handle rivets 3/32" to 3/16" diameter. Working thickness 1/8" to 5/8" can be handled. Made from aluminum alloy . . . rugged, durable yet light weight. Includes a wrench.

HP-200 Rivet Kit. Includes Rivet Tool above, 120° countersink, 1/8" drill bit and approximately 200 assorted rivets including button-head and countersunk types.

Rivet Specifications

Buttonhead Rivets		
Diam.	Working Thickness	Made of
1/8"	1/8"	Steel
1/8"	1/4"	Steel
3/16"	1/8"	Aluminum with aluminum mandrel
3/16"	1/8"	Aluminum with steel mandrel
120 Degree Countersunk Rivets		
1/8"	1/8"	Steel



STEEL TAPE RULES

(A) GA-524A 12' White Tape. Here's a rule that gives extra rigidity for long measurements. The 3/4" wide blade is white with black inch and fraction markings and red foot markings and has the sliding tip. A large internal nylon brake holds the blade securely in any position and will not scratch or mar it in any way. Pressure on the circular center button releases the brake and a powerful spring retracts the blade. The unbreakable zinc alloy case is exactly 2" long for easy figuring of inside measurements.

GA-524A-1 12' Replacement Blade for GA-524A.

(B) GA-508A 8' White Tape. 1/2" wide, black inch and fraction markings and red foot markings. The first 12" are graduated in 32nds, the remainder in 16ths. Has sliding tip for accurate inside and outside measurement. Blade graduated on both edges. Has unbreakable zinc alloy case exactly 2" wide for easy inside measuring. The blade is held at the desired position by an internal nylon brake which will not scratch or mar the blade. When this brake is released by pressure on the circular center button, the blade is retracted by a powerful spring. No need to wind or push.

GA-508A-1 8' Replacement Blade for GA-508A.

(C) GA-510A 10' White Tape. This rule has the same features as GA-508 but has a 10' white blade, 1/2" wide.

GA-510A-1 10' Replacement Blade for GA-510A.

(D) GA-506 6' White Tape. Black markings. Very thin, pocket-watch size. Fully chrome plated case is only 5/16" thick, 1 3/4" in diameter. Blade is 1/4" wide.

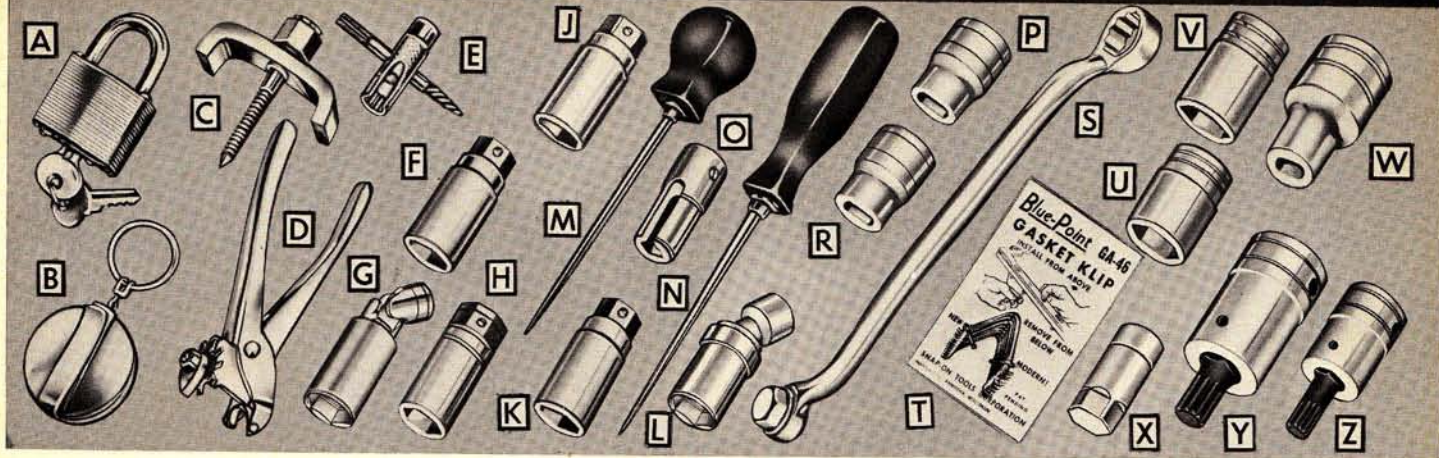
GA-506-1 6' Replacement Blade for GA-506. White with black markings, 1/4" wide.

SIX INCH STAINLESS STEEL RULE



GA-2 6" Steel Rule. Stiff tempered, with ground edges, 3/4" wide, .035" thick, graduated in 32nds on one edge and 64ths on the other. Decimal equivalent etched on back. Stainless steel—will not rust.

MISCELLANEOUS SPECIAL SERVICE TOOLS



A "Master" Padlocks, one of the strongest, finest padlocks made, cannot jar open. Brass cylinder, nickel-silver pin tumbler, brass locking lever.

ML-1 Master Lock $1\frac{3}{4}$ " steel case. Chrome-nickel steel tapered shackle hardened to resist file, saw or cutter; diameter $\frac{5}{16}$ ", vertical clearance $1\frac{1}{16}$ ", our best padlock.

ML-3 Master Lock $1\frac{1}{2}$ " steel case. Chrome-nickel steel shackle hardened to resist file, saw or cutter; diameter $\frac{9}{32}$ ", vertical clearance $\frac{5}{8}$ ". A dependable high grade padlock.

ML-7 Master Lock $1\frac{1}{4}$ " steel case. Manganese steel shackle, diameter $\frac{3}{16}$ ". Vertical clearance $\frac{5}{16}$ ". Smaller than the others but sturdily built for dependable service.

B GA-155A Key-Bac. Helps prevent key loss. Case holds retrieving spring, 2' of chain, clips onto belt or pocket. The large split ring holds many keys.

C CG-25 Freeze Plug Puller. A necessary tool for safely removing expansion or frost plugs quickly and easily from car and truck engines without danger of damage to the rim of the plug hole. Unit consists of two parts, a 2 $\frac{1}{2}$ " long, self-tapping screw and a yoke or bridge. The screw has a point at one end and a hex head with a relieved end at the other. Screw has been heat treated to withstand repeated hammer blows. Bridge is $\frac{1}{4}$ " thick steel with a $\frac{5}{16}$ " hole to receive screw. When in use the bridge is placed in position over the plug and the screw is then inserted into the hole in the bridge with the point touching the plug. Screw is then given a sharp blow to penetrate plug. Turning hex of screw threads it into plug, additional turning removes it. Will handle plugs up to 2" diam.

D CF-71 Spark Plug Gapping Tool for 14mm. $\frac{7}{16}$ " Reach, 18mm. Turbo Action, 14mm. $\frac{3}{4}$ " Reach and 18mm. Commercial. Will increase your spark plug sales by quickly giving exactly the right setting to the electrodes. Assure uniform, parallel gap for a fatter, surer spark. Motor runs smoother. You save time because you gauge and set the electrodes in one fast operation. Gauge wheel sets instantly for any car manufacturers' plug specifications. No "spring-back." Includes these sizes: .018, .020, .022, .025, .027, .028, .030, .032, .034 and .035.

E GA-22A Midget Grease Fitting Tool. Services so called "Midget" grease fittings.

F S-9704D Spark Plug Socket. $1\frac{3}{16}$ " (20.6 mm.) Flank drive single hex socket fitted with an S-9704A-2 rubber insert which grasps the knurl on the spark plug and holds it in the socket. $\frac{3}{8}$ " square drive and $\frac{5}{8}$ " milled hex. Chrome finish.

G S-9704B-FU Spark Plug Flexsocket. $1\frac{3}{16}$ " (20.6 mm.) Flank drive single hex. An S-9704A-2 rubber insert grips the plug firmly to prevent dropping and damaging it. Socket has $\frac{3}{8}$ " square drive, is $3\frac{1}{16}$ " long. Chrome finish. Handles American and Bosch type spark plugs.

S-9704A-2 Rubber Insert only.

H S-9705A Spark Plug Socket. $1\frac{3}{16}$ " (20.6 mm.) Flank Drive single hex. Has an S-9705A-2 rubber insert to protect and hold the plug firmly. $\frac{1}{2}$ " square drive, $\frac{7}{8}$ " milled hex.

S-9705A Rubber Insert only.

J S-9708 Snowmobile Spark Plug Socket. This special socket designed for Snowmobile spark plug service has a 1" single hex Flank Drive opening. It has a $\frac{3}{8}$ " square drive opening and a $\frac{3}{4}$ " milled hex drive. An S-9704A-2 rubber insert holds and protects the plug.

K S-9706 Spark Plug Socket. For 14mm plugs on Buick and 400 and 430 cubic inch engines and some other 1968 and later cars. Has an S-9706-2 rubber insert for plug protection. $\frac{3}{8}$ " square drive, $\frac{5}{8}$ " milled hex, $\frac{5}{8}$ " Flank Drive Hex opening.

S-9706A-FU Spark Plug Flexsocket. Same design as S-9704B-FU. For same 14 mm plugs as above tool. Has an S-9706-2 rubber insert to protect plugs. $\frac{3}{8}$ " square drive, $\frac{5}{8}$ " Flank Drive hex opening.

S-9706-2 Rubber Insert only.

L S-9709 Spark Plug Flexsocket with Ball Joint Action. $1\frac{3}{16}$ " (20.6 mm.) Flank Drive Single Hex. $\frac{5}{8}$ " square drive, $3\frac{1}{16}$ " long. Chrome finish. Has an S-9704A-2 rubber insert to grip and protect the plug.

M 6ASA Scratch Awl. High quality alloy steel blade machined and ground from $\frac{1}{4}$ " diameter to a tapered point. Ferrule prevents blade from pushing through the handle. . . . blade is hardened full length. The handle is black plastic of stubby type. Overall length is $6\frac{1}{2}$ ".

3-SA Scratch Awl. (Not shown) Has stubby plastic handle with short $2\frac{1}{16}$ " blade. . . . $\frac{1}{4}$ " diameter blade tapers to a point. Length overall is $4\frac{1}{16}$ ".

N 5ASA Scratch Awl. Same high quality and length blade with ferrule as in the 6ASA Awl above. Plastic handle is regular length Contour-Grip black plastic as used in our best screwdrivers. Length is $8\frac{1}{2}$ " overall.

O N-36 Zerk Grease Fitting Socket. This is a $\frac{7}{16}$ " single hex socket with a slot machined out of the side wall. It is a time saver when replacing angle grease fittings. $1\frac{3}{16}$ " long. Fits $\frac{1}{2}$ " square drive handles.

Shock Absorber Sockets. Oval openings fit the flattened shaft of most shock absorbers. Both have $\frac{3}{8}$ " square drive. Hold the shock absorber nut with a Boxsocket and use the oval socket with a wrench to run the shaft down into the shock absorber and allow removal of nut.

P A-137 $1\frac{1}{4}$ " x $\frac{5}{16}$ " oval opening.

R A-138 $1\frac{5}{16}$ " x $2\frac{1}{4}$ " oval opening.

S S-5902 Volkswagen Oil and Transmission Plug Wrench. Has an offset double hex 21 mm. Boxsocket wrench opening at one end and a 17 mm. offset male hex on the other. Overall length $10\frac{1}{4}$ ". Chrome plated.

T GA-46 Gasket Clips. Set of twelve spring steel clips. Hold gasket firmly in place while assembly is being made. Protects the gasket—cuts time 50 per cent. Quickly removed when bolts are positioned.

U A-118 Stop-Light Switch Socket. 1" Hex socket, $\frac{3}{8}$ " drive for removal and replacement of stop-light switch. Clears wire terminal on end of switch. $1\frac{3}{4}$ " long, bolt clearance depth $1\frac{1}{8}$ ", O.D. $1\frac{1}{16}$ ".

V A-119 Oil Pressure Sender Socket. $1\frac{1}{16}$ " single hex, $\frac{3}{8}$ " square drive for use on all makes of cars with electric oil sender switches, especially GM. Provides greater wall contact, also useful on brass and other soft metal hex fittings. 2" long. Bolt clearance depth $1\frac{3}{8}$ ", O.D. $1\frac{3}{8}$ ", Chrome plated.

W Shock Absorber Sockets. Made with oval socket openings to fit the flattened shock absorber shaft end. Hold the shock absorber nut with a box wrench and use the special socket to screw the shaft into the shock absorber to allow removal of the nut. Each socket is $1\frac{1}{8}$ " long with $\frac{1}{2}$ " square drive and is chrome plated.

A-135 Socket. For $1\frac{5}{16}$ " x $2\frac{1}{16}$ " Shafts.

A-136 Socket. For $\frac{1}{4}$ " and $\frac{5}{16}$ " Shafts.

X CPT-110A Volkswagen Drain Plug Socket. Fits the 17 mm. single hex opening in Volkswagen oil drain pump. Tool has a $\frac{3}{8}$ " square drive and is 2" long.

Opel Cap Screw Drivers. Triple square drivers designed for use with a Torqometer to torque down Opel head and manifold cap screws. Can also be used on other foreign 8 or 10 mm. triple square cap screws.

Y STSM-12 12mm., $\frac{1}{2}$ " square drive. Use for Opel head bolts.

Y STSM-10A 10mm., $\frac{1}{2}$ " square drive. Use for Opel cylinder head cap screws.

FTSM-6 6mm., $\frac{3}{8}$ " square drive. Use for V.W. disc brake (caliper).

Z FTSM-8A 8mm., $\frac{3}{8}$ " square drive. Use for Opel manifold cap screws.

"BLOC-CHEK" LEAK TESTER Spots and Locates Combustion Leaks

Start tune-up procedure with Bloc-Chek. Watch for symptoms of combustion leaks. You may prevent a cracked head or block, pick up jobs that might have been over-looked, or prevent a leak in air sample from cooling system and through the test fluid.

If combustion gas is leaking into the cooling system the test fluid color changes from BLUE to YELLOW, even if the leak is very small. If a leak is indicated, the exact location is found by removing one spark plug at a time and retesting. When a leaking cylinder is firing, the liquid will change to yellow—when non-leaking cylinders only are firing, the liquid will remain blue.

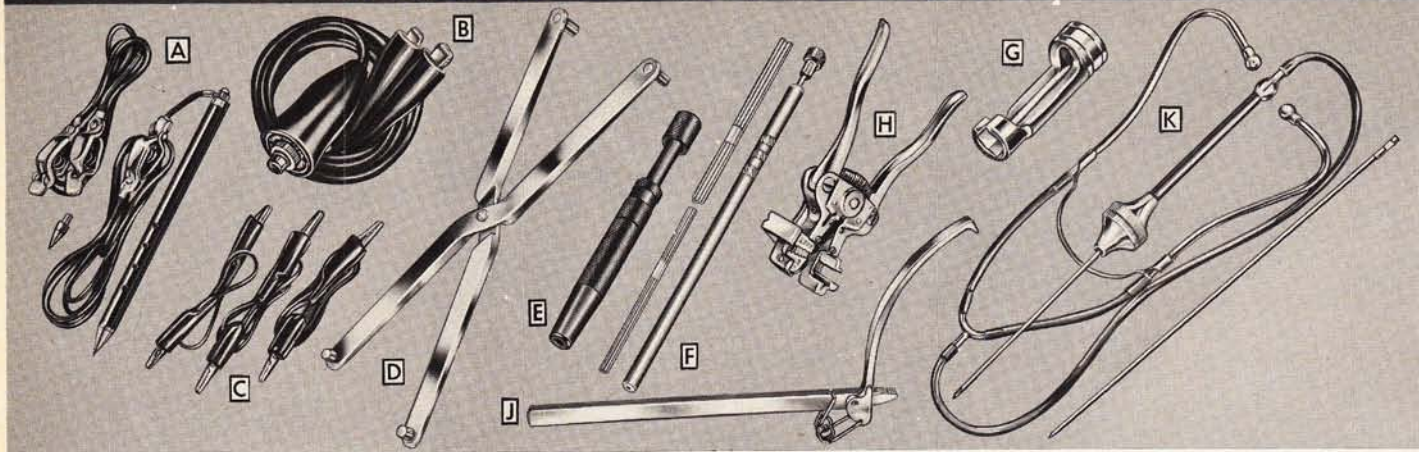
Undetected combustion leaks in the valve area often cause cracked and loose valve seats. The coolant is forced away during heavy acceleration causing excessive heat build-up. When acceleration ceases, the diverted coolant rushes back to the area—damage to valve seats can result.

GA-170 Bloc-Chek Kit. Includes Tester, Fluid and Bulb in carton.

GA-172 Test Fluid. 16 oz. bottle.



MISCELLANEOUS SPECIAL SERVICE TOOLS



A MT-330 Etching Pencil with $4\frac{1}{2}'$ lead wire. Can be used on either 6 or 12 volt systems to etch virtually any metal, removable parts or tools. Wires are flexible to avoid kinking. Pencil is small in diameter, has firm positive grip. The heavy duty replaceable solid copper tip has high current density. One tip is provided. Grounding wire is not provided but is available as optional unit. Extra tips also available. Black bakelite handle.

MT-51902 Extra etching tip.

MT-52016 3' Grounding jumper wire.

B MT-302 Remote Control Starter Switch.

A handy switch that permits the operation of the automobile engine from either side or from beneath the car. The 5 foot leads are of ample length. Unit will carry current of any car with push-button starter including GM cars which use solenoids. Compact, made of highest quality materials that assure long life. Switch housing is of neoprene with positive, comfortable grip—keeps out dirt and moisture. Is shock-proof. Switch button is chrome plated, resists rust. Heavy duty switch has inlaid silver contact points to reduce arcing.

C MT-301 Test Lead Kit. This set of three jumper leads (one 12", one 18" and one 24") provides a safe and quick method for checking wiring between lights, switches, ignition testing etc. All three leads have an alligator clip at each end with powerful spring action to assure firm, electrical connection. Also used as extensions for test leads or for shorting out components when testing ignition. Packed in plastic bag.

D A-176 Differential Adjusting Wrench.

Two sizes of prongs ($\frac{9}{32}"$ and $\frac{17}{32}"$ long) on spreadable arms fit the adjustment nuts on most differentials. May also be used on other jobs such as on steering gears, some water pumps, transmissions, etc., where a spanner wrench of this type is needed. Tool is 10" long.

E GA-142. This tool has been discontinued and is not available.

F GA-158 Rear Main Bearing Tool. Stops rear main bearing leaks without dropping the crankshaft. Consists of driving tool and twelve spacers—six large, six small. Remove bearing cap, start spacer in bottom of groove behind seal, place driver over spacer and tap push rod with hammer to insert spacer completely.

GA-158-60 Pkg. of 12 Small Spacers

GA-158-90 Pkg. of 12 Large Spacers

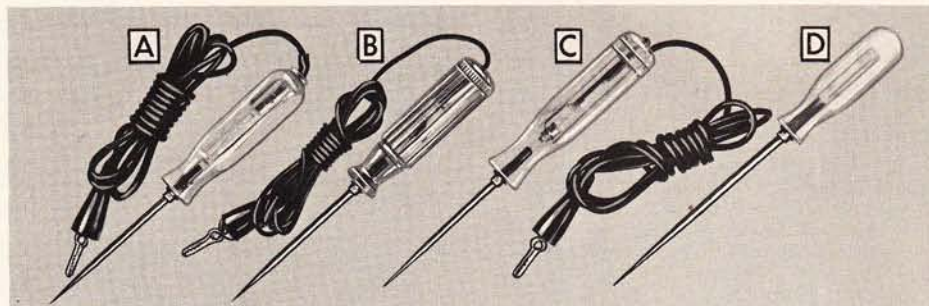
G M-3503 Diesel Fuel Injector Socket. For use when working on the injector fuel lines of Detroit Diesel engines. The socket fits $\frac{1}{2}"$ square drive handles or Torqometers. The wrench opening is $\frac{1}{2}"$ single hex with a $\frac{9}{32}"$ wall opening to slip over the fuel line. The socket is cut away to provide for the exit of the line. Overall length is $3\frac{1}{4}"$.

H GA-116 Wire Stripper. As an aid when stripping a series of wires an adjustable guide on the head of the tool can be set to remove $\frac{1}{4}"$ to 1" of insulation with every squeeze of the handle, leaving the wire clean and ready for connecting. The specially hardened jaws are easily replaceable and have 6 openings to handle 8 wire sizes from 8 thru 22. An adjusting screw regulates how close the jaws come together to further assure proper stripping of various types of insulation wire.

GA-116-2W-1 Replacement Blades, set of 2.

J A-144 Flywheel Turner. A real time-saver when working on clutches, automatic transmissions, ring installing and other jobs where you need the crankshaft in a specific position. The flywheel is gripped between the serrated handle tip and the swinging arm tip... double spring tension holds the tool fast to the wheel leaving hand free to work. Arm folds back for easy storage. Handle is $11\frac{3}{4}"$ long.

K GA-111A Mechanics Stethoscope saves time in locating and diagnosing any engine sound such as bearing noise, knocks, squeaks in fan or water pump, valve tappets, etc. Tells you where the trouble is before you start work. Stethoscope has sound amplifying diaphragm and shock-proof plastic shaft. Comes complete with 6" probe and an additional 12" extension probe.



CIRCUIT AND SPARK TESTERS

A CT-4B Circuit Tester. This handy professional mechanics tester has 2 to 18 volt direct current capacity. Checks shorts, breaks, grounds in wiring, ground in field coils, loose connections, sticking relay points, burned out bulbs, etc. It makes trouble shooting fast and easy and really aids in speeding electrical repair jobs. Sharp pointed steel prod is securely anchored in the handle... Shank bolster prevents the prod from being pushed back into the handle. The semi-transparent plastic handle has high dielectric strength and the alligator ground clip has a rubber boot. Metal cap in end of handle prevents the 6-foot long ground cord from pulling loose from internal connections—and unscrews to permit easy bulb changes. Ground the tool on the car then push the point through the cable insulation to contact the conductor. Make tests with the engine turned off.

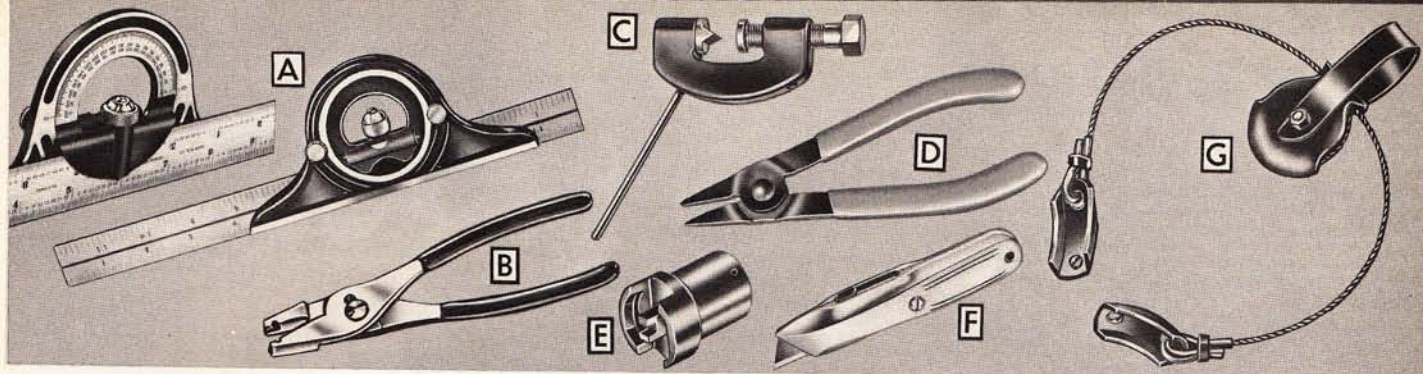
B CT-5 Polarity and Circuit Tester. Similar in all respects and appearances to the CT-4B above except it has a diode built into it for polarity tests. Use for testing battery polarity, polarity of circuit, etc. Positive current causes neon bulb to light; negative current will not. In testing circuits, be sure to have correct polarity.

C CT-6 Circuit and Spark Tester. Can be used on 6 or 12 volt ignition systems to check for shorts, breaks, grounds in wiring or to check field coils, stuck relay points, burned-out indicator lights, etc. As a spark tester its neon tube can locate mis-firing or shorted spark plugs. Handle is clear plastic in contour grip design. A switch in the crown moves to let you select the "spark" or "test" position. A live circuit causes bulb to glow. The sharp point pierces insulation to speed the job and the alligator clip grounds the tool to eliminate shock hazard. Tool is 8" long and has six-foot cord.

D SSTP-5 Spark Tester. Ignition systems used on late model cars are completely shielded so you can no longer make contact at the spark plugs with standard spark testing screw drivers. This tool consists of a transparent plastic handle with a neon tube fitted into it and a tapered prod with a very sharp point. In use this prod is pushed through the insulation of the high tension leads to contact the wire. Intensity of the neon flash indicates condition of the spark.

The handle is shock resistant, even to the high voltage current encountered. Blade bolster prevents the blade from pushing through the handle.

MISCELLANEOUS SPECIAL SERVICE TOOLS



A GA-282 Protractor-Level with 12" scale.

Measures the drive shaft angle on cars with exposed or "open" drive shafts. Correct drive shaft angle is very important to insure proper functioning and to prevent damage. This tool is also useful for measuring engine angle, pinion shaft angle, various applications on air ride suspension systems, torsion bars, etc.

The highly accurate, revolving turret protractor is attached to an adjustable sliding 12" rule graduated in 8ths, 16ths, 32nds and 64ths. The turret protractor scale is graduated to 90° on either side of 0. A bubble level attached to the side of the turret is easily replaced if necessary. Turret base is 7" long and 3/4" wide. This rugged and highly accurate unit will withstand hard usage.

B HCP-48BP Hose Clamp Pliers.

Two position slip joint model for 3/4" to 2" diameter Corbin hose clamps. The specially milled jaws hold the clamp securely in line with or at right angles to the handles. Black finish, handles covered with plastic. 8" long.

HCP-46BP Same as HCP-48BP but smaller. Handles 3/4" and smaller hose clamps.

C NC-52 Nut Splitter. Quickly and easily removes nuts rusted or frozen in place. The heavy duty forged body encircles nuts up to 7/8" across the flats. The hardened cutting chisel is held in the housing with a friction ball and can be turned to the best position for splitting action. Pressure screw has a 3/4" hex head for wrench application. Do not use with power wrenches. The anvil is held in the screw with a friction ring and is replaceable.

NC-52-3 Extra cutter for above.

NC-52-4 Extra anvil for above.

D GA-251 Snap-Ring Pryer. Specially designed jaws remove and replace snap-rings on the drive end of the armature shaft on Delco starters found on GM, A.M.C., and other engines. The tool spreads the ring just enough for it to slide on or off the shaft without distorting, bending, or breaking it. You'll find other useful applications involving snapping service. Handles have a soft red plastic covering, body of the tool has black finish. Tool is 5 5/8" long.

E A-172 Standard Bung Socket for use with 1/2" square drive ratchet or impact wrench for easy removal of screw-in bungs on all drums. Saves time, eliminates damage to bung or drum and avoids skinned knuckles. Steel construction, black finish. Socket fits around outside of small bungs, the inside of large bungs, enabling the specially shaped housing or spring-loaded tongue to grip bung tightly.

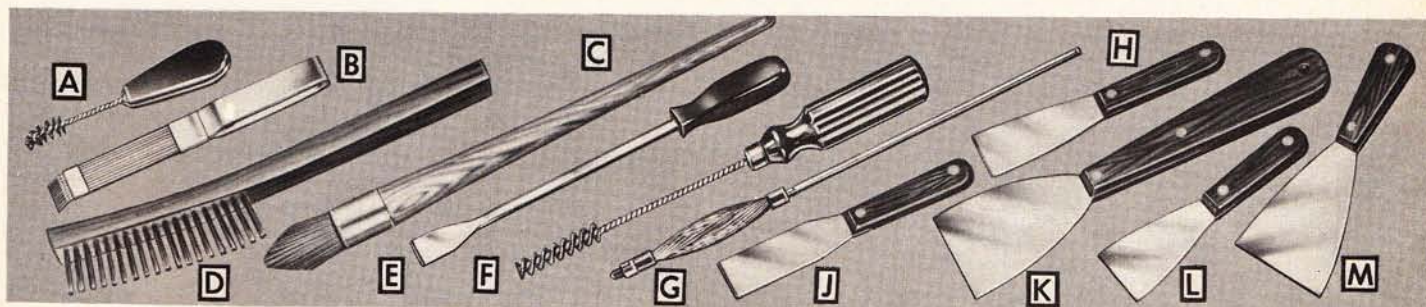
F GA-169 Utility Knife with five double-pointed alloy steel blades. Has hundreds of uses. Cast aluminum handle provides good, firm grip — has spare blades stored in it. Safety slide lock allows the blade to be locked in either of three positions.

GA-169-5 Pack of five replaceable blades.

G GA-77B Engine SAF-T-LIF. This unit bolts to the cylinder studs on any engine and provides ample angle adjustment for raising and lowering engines in close quarters. Extra safe—it is tested for a 2 ton lift... and the hook adaptor fits lifts with large or small hooks. The Saf-T-Saddle permits the cable to be moved to the best lifting position but will not slip out of position under load. The flexible preformed, steel aircraft cable has attached end fittings drilled to fit 1/2" diameter studs.

The SAF-T-LIF has a 36" long cable which will handle most V-8 engines. It comes complete with a universal type hook adaptor. Handle engine removal and replacement the dependable, easy and safer way with one of these made-for-the-job units. Don't take chances with any make-shift methods.

GA-77B...Long SAF-T-LIF with Hook Adaptor.



WIRE BRUSHES AND SCRAPERS MAKE "CLEAN-UP" WORK SIMPLE AND EASY

A TAIL LIGHT SOCKET BRUSH

AC-41A Cleaning Brush for Tail-Light Sockets. Stiff wire bristles remove rust, dirt and corrosion and clean socket and contacts with just a few quick twists. Assures positive bulb contact. The shaft is heavy gauge twisted wire that is wrapped around the edge of the flat wood handle. Handle provides a good, firm grip. Tool is 7 1/4" long.

B FLEXIBLE CARBON SCRAPER

CS-1 Flexible Wire Carbon Scraper. Ten blades of high quality oil tempered spring steel. Flexibility controlled by a sliding ferrule. Does excellent work.

C PARTS CLEANING BRUSHES

Long life nylon bristles provide hard wearing abilities with flexibility to do cleaning jobs quickly and easily. Long handles and tapered heads get into restricted places to do a fast job.

GA-173A...1/2" Diam. Brush. 8 1/2" overall length.

GA-174A...3/4" Diam. Brush. 10" overall length.

GA-157A...1" Diam. Brush. 12" overall length.

D STANDARD WIRE BRUSH

AC-58B Wire Brush. Do not confuse this high quality brush with the ordinary ones that give you limited life and usefulness. This brush, while inexpensive, has high quality, stiff wire bristles that have a lot of "spring" for long life.

E RIGID CARBON SCRAPER

CSA-12 Carbon Scraper. Forged 1/4" square shank flared out to 1" scraping width. Blade is slightly curved to allow tip to lie flat against work. Blade solidly anchored in plastic handle. Overall length 12".

F VALVE GUIDE BRUSHES

High quality spiral wire brushes woven into twisted wire shank. Fluted wood handle.

AC-10 5/16" size

AC-11 1/2" size

AC-12 3/8" size

AC-14 7/16" size

G EXPANSION HOLE CLEANER

RV-1020 Cleaner. Spiral wire tool with expansion range to cover 5/16" to 3/8" valve guide holes. Cleans and burnishes any corroded hole in this range. Use with 1/4" electric drill.

SCRAPER BLADES

High quality scrapers for removing old gaskets, paint, undercoating, grease, etc. The alloy steel blades are ground to uniform thickness for proper degree of stiffness and "mirror" finished for easy cleaning and to retard rusting. Light rosewood handles do not shrink. Blades are firmly riveted in place.

H PK-22.....Straight Scraper 1 1/2" blade

J PK-23.....Chisel edge Scraper 1 1/2" blade

K PK-31 Heavy Duty Chisel Edge Scraper. Blade is 3" wide, 4 1/8" long. Handle is 7 3/8" long to give extra power to bear down on tough jobs.

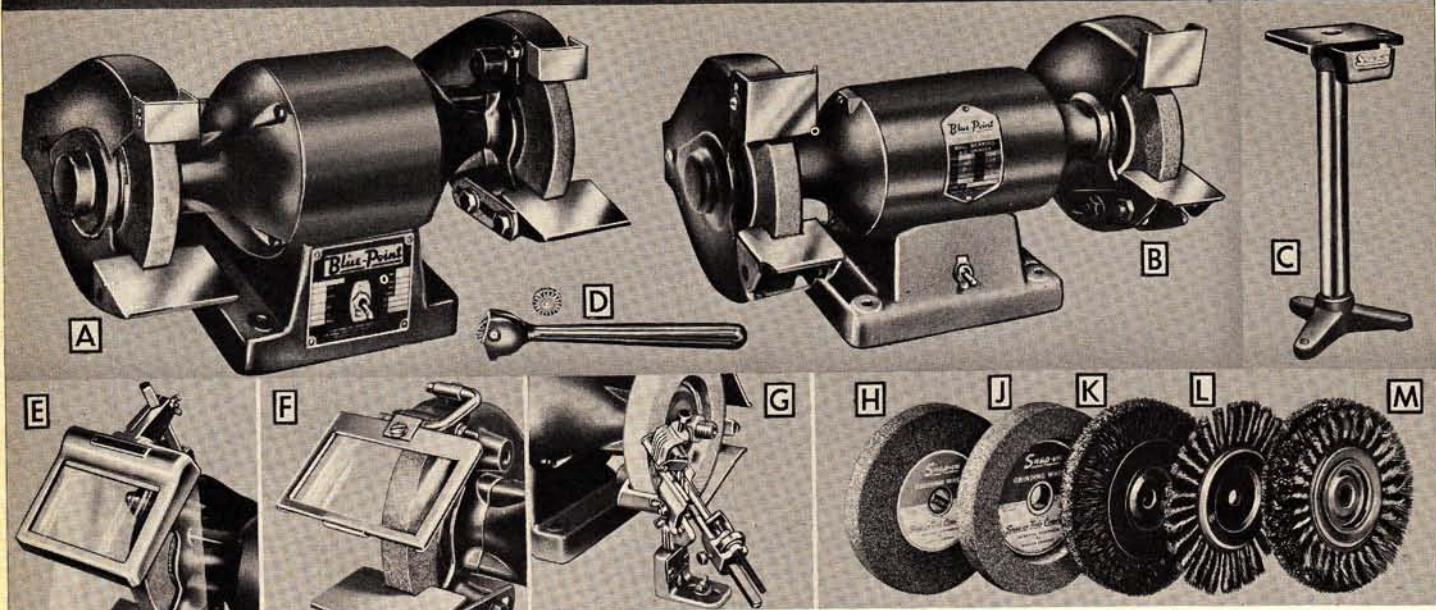
WOOD HANDLE PUTTY KNIVES

Especially useful for spreading plastic material used in filling automobile body dents. Rosewood handles will not dissolve in this plastic. Have mirror finish blades, will withstand long service. Blades semi-flexible.

L PK-20.....2 1/2" blade Scraper

M PK-40.....4" blade Scraper

Blue-Point BENCH GRINDERS AND ACCESSORIES



SUPERIOR FEATURES OF THESE GRINDERS ASSURE SMOOTH, POWERFUL OPERATION

- **COMPLETELY ENCLOSED MOTOR:** Super powered, precision balanced motors are enclosed to prevent dirt, grit, etc., from entering motor or bearings.
- **BALL BEARING CONSTRUCTION:** Oversize labyrinth grease sealed ball bearings used throughout, assure smooth, long lived motor operation.
- **MOTOR:** Capacitor start on 1/2 H.P. models, split phase on 1/3 H.P. and 1/4 H.P. models.
- **LARGE WHEEL GUARDS:** Wide, enclosed types provide protection and allow use of special shape wheels or wire brushes. Rear outlet can be connected to industrial exhaust systems. Guards are easily removed to permit changing wheels and are drilled for installation of eye shields and furnished with adjustable chip breakers.
- **BELL TYPE CONSTRUCTION:** On all models allows grinding of long pieces.
- **STURDY TOOL RESTS:** Are fully adjustable with ample take-up for wheel wear and may be tilted 0° to 60°.
- **LARGE RUGGED CAST IRON BASE:** Equipped with rubber feet to provide solid mounting free from vibration. Has recessed bolt openings for permanent mounting.
- **WIRING:** The 1/2 H.P., 1/3 H.P. and 1/4 H.P. models listed have grounding type 3-wire cord and 3-prong plug.

BENCH GRINDER MODELS AVAILABLE

	Standard Models	BG-1000	BG-1002	BG-750	BG-752	BG-500	BG-333	BG-250B
(A) BG-1000. 1 H.P., Single phase motor, capacitor start.								
(A) BG-1002. 1 H.P., Three phase motor, 220/440 volt.								
(A) BG-750. 3/4 H.P., Single phase motor, capacitor start.								
(A) BG-752. 3/4 H.P., Single phase motor, 220/440 volt.								
(A) BG-500. 1/2 H.P., Single phase motor, capacitor start.								
(B) BG-333. 1/3 H.P., Single phase motor, split phase start.								
(B) BG-250B. 1/4 H.P., Single phase motor, split phase start.								
Motor Rating...	1 H.P.	1 H.P.	3/4 H.P.	3/4 H.P.	1/2 H.P.	1/3 H.P.	1/4 H.P.	
Amperes.....	13	3.2/1.6	9.0	2.8/1.4	5.6	4.6	3.4	
Voltage.....	115	220/440	115	220/440	115	115	115	
Cycle.....	50/60	50/60	50/60	50/60	†50/60	†*60	*60	
No Load RPM—								
at 60 cycles....	1725	1725	3450	3450	3450	3450	3450	
at 50 cycles....	1425	1425	2850	2850	2850	2850	2850	
Spindle Length..	22"	22"	22"	22"	20"	16"	14 1/4"	
Spindle Height..	6 1/2"	6 1/2"	6 1/2"	6 1/2"	5 1/2"	5"	4 3/8"	
Total Height....	12"	12"	11"	11"	9 3/8"	8 1/2"	7 1/2"	
Wheel Diam....	10"	10"	8"	8"	7"	6"	6"	
Wheel Face....	1"	1"	1"	1"	1"	3/4"	3/4"	
Arbor Diameter..	3/4"	3/4"	3/4"	3/4"	5/8"	1/2"	1/2"	
Ship'g Wgt. Lbs..	121	121	105	105	68	36	26	

* Available in 50 cycle on special order. † Available for 220 volt on special order.

GRINDER PEDESTALS

Mount your bench grinders on a really solid base. Consists of cast top with slot holes to mount grinder, 3-legged base with floor mounting holes and steel tube shaft. Pedestal is 32 1/2" high and is finished in attractive gray color. Shaft can be cut to adjust height.

BGB-30, for 1/2, 3/4, or 1 H.P. Grinders. Has coolant bucket cast into the top.

BGB-20, for 1/4 and 1/3 H.P. Grinders. Does not have coolant bucket.

WHEEL DRESSER

WD-12 Wheel Dresser, removes glaze and trues up wheel in a hurry. Made extra strong. New cutters are easily inserted when old ones wear out. Hood over cutter protects operator.

WD-12-1. Set of extra cutters for the WD-12 Wheel Dresser.

3-PRONG PLUG OUTLET ADAPTOR

EC-3 Adaptor (Not illustrated). One end plugs into standard 2-prong outlet—the other receives 3-prong plug.

EYE SHIELDS PROVIDE PROTECTION

(E) S-60 Floodlight Eye Shield. Two 25 watt 115 volt light bulbs in each shield flood work with direct light and provide visibility for safe work. Sturdy aluminum die cast frame has window opening 4" x 6" with top sheet of safety glass and bottom sheet of standard glass, easily replaced, if it becomes pitted. Easily attached to grinder, easily adjusted up or down.

S-60-16. Extra 25 watt Light Bulb.

(F) S-69 Standard Eye Shields. Thick safety glass gives clear vision, with adequate protection from flying particles. Frame swivels to best working position for the job... easily attached to grinder.

DRILL GRINDING ATTACHMENT

(G) DG-1500 Drill Grinding Attachment. It is fastened to the bench with only one bolt and can be left in position or quickly removed after use. Adjustable for 49°, 59°, 68° and 88° and countersink point angles, handles drills from 1/8" to 3/4" diameters. The drill is clamped in a "V" type groove and the attachment is swiveled across the side of the grinding wheel for an accurately angled sharpening job.

QUALITY GRINDING WHEELS

Natural aluminum oxide abrasive, fully vitrified and balanced for fast cutting. Wheels furnished with bushings as listed below.

Stock No.	Bushing	Arbor	Grit	Dia.	Width
(H) Straight Sided Wheels					
W-62436	5/8" & 1/2"	3/4"	36	6"	3/4"
W-62460	5/8" & 1/2"	3/4"	60	6"	3/4"
W-63236	5/8" & 1/2"	3/4"	36	6"	1"
W-63260	5/8" & 1/2"	3/4"	60	6"	1"
W-73236	5/8"	3/4"	36	7"	1"
W-73260	5/8"	3/4"	60	7"	1"
W-83236	3/4" & 5/8"	1"	36	8"	1"
W-83260	3/4" & 5/8"	1"	60	8"	1"
W-103224	1", 7/8" & 3/4"	1 1/4"	24	10"	1"
W-103246	1", 7/8" & 3/4"	1 1/4"	46	10"	1"
W-103260	1", 7/8" & 3/4"	1 1/4"	60	10"	1"
(J) Recessed Wheel (use with drill grinding attachments)					
W-63260R	5/8" & 1/2"	3/4"	60	6"	1"

HIGH QUALITY WIRE WHEELS

The high quality crimped metal bristles help prevent bending or breaking. They are so anchored that there are no welds or crimps in the flanges. The bushing adaptors are a permanent part of the wheel.

Standard Duty Wheels. Good quality, light weight brushes for intermittent, all-round use. Strong and durable.

No.	Diam.	Width	Arbor Hole
AC-414A	4 1/4"	3/4"	1/2"
AC-33	6"	3/4"	1/2" to 2"

Heavy Duty Wheels. Built for heavy duty continuous service on all types of jobs.

No.	Diam.	Width	Arbor Hole
AC-26	6"	1 1/8"	1/2" to 2"
AC-27	7"	1 1/4"	1/2" to 2"
AC-28	8"	1 3/8"	1/2" to 2"

Specify Arbor Size Required

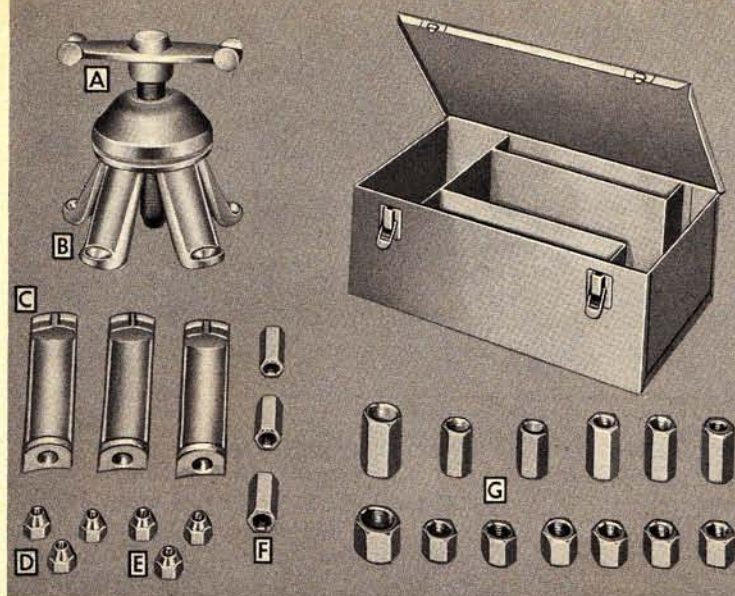
TWISTED TUFT WIRE WHEELS

Very high quality wheels with tufts 1 1/4" long. Tufts on AC-614 are twisted through entire length, tufts on the other two wheels are twisted about 2/3 of their length. Arbor holes are 5/8" but have a throw-away plastic bushing which allows use on 1/2" shafts.

No.	Diam.	Width	Wire	Arbor Hole
AC-614	6"	7/16"	.016	1/2"-5/8"
AC-618	6"	9/16"	.0118	1/2"-5/8"
AC-632	6"	1"	.0118	1/2"-5/8"

▲ Federal Specs: GGG-D-631A applies to the WD-12 grinding wheel dresser, H-B-0071A applies to the heavy duty and standard wire wheels, H-B-7716 applies to AC-618 wire wheel listed above.

UNIVERSAL WHEEL PULLER



It pulls any demountable wheel hub for any passenger car and most light weight trucks by inserting the proper type jaws and attaching the tool to the stud bolts. The patented pressure screw drive is known to be the fastest, easiest, safest, and most efficient method of pulling any hub . . . The interchangeable jaws pivot and swing to any desired bolt circle. Pulling is always direct from the housing flange, and the jaws automatically center themselves, providing a positive direct leverage regardless of the working angle of the jaws. Thrust Nuts should be used on small and medium sized axles to protect the threads while pulling the hub. This puller works quickly, efficiently and without danger to any part of the car or to the operator.

UNIVERSAL WHEEL PULLER SETS

▲ **S-4567B-B Basic Wheel Puller Set.** For passenger cars and light trucks. Consists of the 4567-P Body and Drive Assembly and the 4567-GA Set of Four Short Jaws. In KRA-107 Metal Box.

▲ **S-4567B Set.** Above set without the Metal Box.

S-4567A-B Standard Wheel Puller Set. Consists of the 4567-P Body and Drive Assembly, 4567-GA Set of Four Short Jaws and TN-1300 Set of thirteen Thrust Nuts, complete in KRA-107 Metal Box.

S-4567A Set. Above set without the box.

S-4567C-B Complete Wheel Puller Set. Consists of the following parts, complete in KRA-107 Metal Box.

- (A) 4567-P Body and screw assembly without jaws.
- (B) 4567-GA Set of 4 short jaws
- (C) 4567-H Set of 3 long jaws
- (D) 4567-C $\frac{3}{8}$ " tapered stud nuts (3)
- (E) 4567-CC $\frac{7}{16}$ " tapered stud nuts (3)
- (F) 4567-I right and left hand thread $\frac{3}{4}$ " stud nuts (3)
- (G) TN-1300 Set Thrust Nuts

S-4567C Set. Above set without the box.

TN-1300 THRUST NUT SET

- | | |
|---|---|
| TN-201 $\frac{5}{8}$ " x 18, $\frac{3}{4}$ " long | TN-282 $\frac{7}{8}$ " x 18, $\frac{3}{4}$ " long |
| TN-202 $\frac{5}{8}$ " x 18, 2" long | TN-283 $\frac{7}{8}$ " x 14, 2" long |
| TN-241 $\frac{3}{4}$ " x 16, $\frac{3}{4}$ " long | TN-321 1" x 14, $\frac{3}{4}$ " long |
| TN-242 $\frac{3}{4}$ " x 20, 2" long | TN-322 1" x 14, 2" long |
| TN-243 $\frac{3}{4}$ " x 16, 2" long | TN-401 $1\frac{1}{4}$ " x 12, $\frac{7}{8}$ " long |
| TN-261 $1\frac{3}{16}$ " x 16, $\frac{3}{4}$ " long | TN-402 $1\frac{1}{4}$ " x 12, $2\frac{1}{2}$ " long |
| TN-281 $\frac{7}{8}$ " x 14, $\frac{3}{4}$ " long | |

▲ **S-4567D-B Wheel Puller Set.** Same set as the S-4567C-B Set but without the TN-1300 Thrust Nut Set. In KRA-107 Box.

S-4567D Set. Above set without the box.

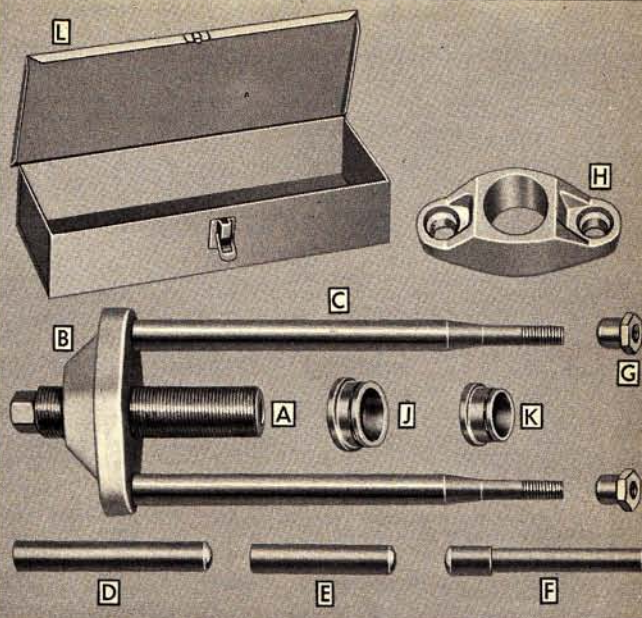
KRA-107 Special Metal Box. $15\frac{3}{4}$ " x $9\frac{7}{8}$ " x $5\frac{5}{8}$ " high.

4567A Hammer-Head Pressure Screw only.

VOLKSWAGEN ACCESSORIES (Not included in above sets)

- 4567-R Set of six studs for Volkswagen.
- 4567-R-1 Set of three 12 mm. x 1.5 mm. studs.
- 4567-R-2 Set of three 14 mm. x 1.5 mm. studs.
- TN-405 Thrust nut for Volkswagen axles.

KING PIN PRESS SETS

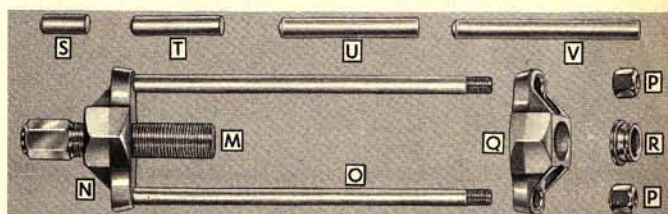


The SNAP-ON King Pin Press provides an easy way to remove the most stubborn king pins and eliminates time taking and dangerous methods such as heating and sledge hammer tactics. A steady powerful pressure pushes the pin out safely, easily and quickly. Every part is designed and constructed to provide plenty of reserve strength to remove the tightest pins. To remove King Pins, the front wheel is removed and the two yoke posts slipped over the axle and steering knuckle plate. The heads swivel enough to adapt themselves to practically any car. Several pilots and adaptor bushings adapt the tool to the different sizes of King Pins used.

CAR AND LIGHT TRUCK SETS

CG-212A-B General Purpose King Pin Set. Services most cars and light trucks including Ford 1 ton and $1\frac{1}{2}$ ton trucks with solid King Pins. Complete in KRA-104 box.

CG-212A Set. Above set without the box.



HEAVY TRUCK KING PIN PRESS SET

CG-230 Truck King Pin Press Set. Contains the units listed below. Parts are bigger and stronger than the parts in the car sets. The pressure screw hex head fits a $1\frac{1}{2}$ " wrench. This set will not fit into the box shown above.

List of King Pin Press Parts

FOR CARS — LIGHT TRUCKS			FOR TRUCKS		
Stock No.	Set CG-212A-B	Description of Part	Stock No.	Set CG-230	
(A) CG-21A	1	Pressure Screw	(M) CG-230-1	1	
(B) CG-21B	1	Screw Yoke	(N) CG-230-2	1	
(C) CG-21D	2	Screw Yoke Post	(O) CG-230-4	2	
(D) CG-21E	1	$\frac{3}{4}$ " Long Pilot			
(E) CG-21F	1	$\frac{3}{4}$ " Short Pilot			
(F) CG-21G	1	$\frac{3}{8}$ " Pilot			
(G) CG-21J	2	Post Nut	(P) CG-230-5	2	
(H) CG-21P5	1	General Use Head	(Q) CG-230-3	1	
(J) CG-21P3	1	$1\frac{1}{4}$ " Bushing	(R) CG-230-6	1	
(K) CG-21P2	1	1" Bushing			
(L) KRA-104	1	Metal Case			
		2" Pilot	(S) CG-230-7	1	
		4" Pilot	(T) CG-230-8	1	
		6" Pilot	(U) CG-230-9	1	
		8" Pilot	(V) CG-230-10	1	

AUTOMATIC TRANSMISSION OIL PRESSURE GAUGE SET

GAUGE SET FOR AUTOMATIC TRANSMISSION OIL, THROTTLE AND GOVERNOR PRESSURE

The large gauge checks oil pressure on virtually all automatic transmissions on the latest model cars, its 3½" dial is calibrated from 0 to 300 p.s.i. This is the gauge shown in both sets below.

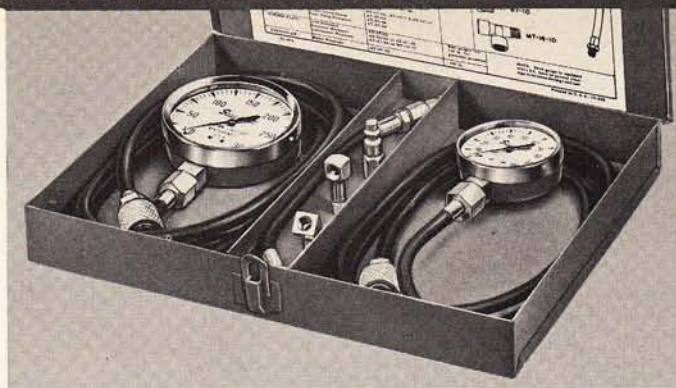
The small gauge, calibrated from 0 to 100 p.s.i. permits throttle and governor pressure tests to be made as recommended on most automobiles. These pressures are too low for accurate readings to be taken on the larger gauge. This gauge can be used to measure oil pressure on cars equipped with warning lights instead of pressure gauge on the dashboard.

The scale on this gauge is calibrated in increments of two pounds, numerals indicating ten pounds divisions are also shown. A special red zone is provided between 13 and 15 p.s.i. which is the normal range for throttle pressure of Power Flight transmissions. The uncluttered, easy-to-read dial face is 2½" in diameter. A hook is included on the rear of both gauges to permit hanging in the most convenient location for reaching. Each gauge is equipped with a five foot hose to permit readings to be taken during road tests.

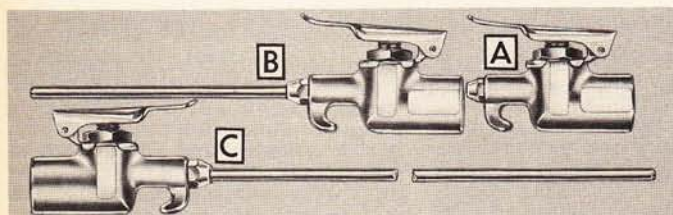
A metal box, KRA-141 shown left is included in the Set. Box measures 13¼" x 10½" x 1¾" and is finished in red enamel. Contains instructions inside cover showing the proper adaptor to use for each car.

AT-67R-B Complete Automatic Oil Pressure Gauge Set consisting of all parts listed at right in KRA-141 Metal Box.

KRA-141 Metal Box with cover clasp fasteners.



Stock No.	Description	Stock No.	Description
AT-67-1B	Oil Pressure Gauge, Hose and Quick Coupler Assembly (Zero to 300 p.s.i.)	AT-67-11B	Small Gauge Assembly, includes: Gauge, Hose and Quick Coupler (Zero to 100 p.s.i.)
AT-67-2B	Flexible Adaptor	AT-67-12A	Adaptor for 1960 Ford throttle pressure linkage
AT-67-5	Adaptor for Chevrolet	KRA-141	Metal Box
AT-67-8	45 degree Street "L" (⅜" Pipe)		



IMPROVED PRESSURE BLOW GUNS

Pressure guns with trigger controlled air from a whisper to full line pressure. Spring loaded control valve with no cutoff . . . no restrictions. These are high quality units — cadmium plated.

A JT-10A Standard Gun. 2½" long.

B JT-11A Long Gun. Has a 4" tube for carburetor, cylinder, brake work, etc. 6½" long.

C JT-12A Extra Long Gun. 9¾" tube. 12" long.

JT-10A-3 Short Nozzle.

JT-11A-3 4" Long Tube Nozzle.

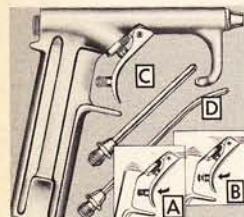
JT-12A-3 9¾" Long Tube Nozzle.

CONTROLLED AIR BLOW GUNS

Put the amount of air you want — from a whisper to full line volume — where you want it . . . with optional trigger assemblies for air control. Dual air inlets — at rear of top and bottom of pistol grip handle provide choice for convenient air source connection . . . interchangeable plug seals unused inlet. Front hanging hook keeps gun always in a convenient place — out of way when not in use. Chrome plating to resist rust and corrosion. Guns furnished with standard nozzle. Other nozzles available are listed below at left.

A JT-321 Gun. With instant spring adjustment for air control.

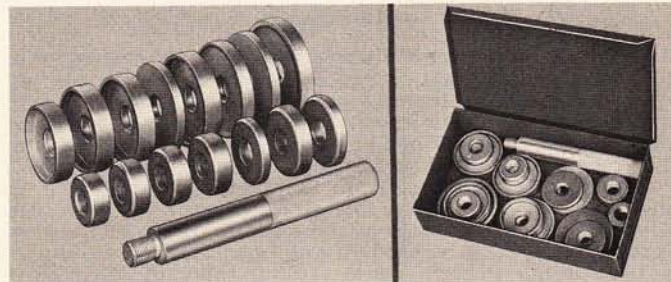
B JT-323 Gun. With lock-nut trigger assembly for positive control of air.



JT-321-4 Standard Nozzle

JT-321-5 4-inch Straight Nozzle

JT-321-6 6-inch Bent Nozzle



WHEEL SEAL DRIVER SET

A-1417B Wheel Driver Set. Set consists of 7 pilot plates, 8 driver plates and solid handle. The various units fit both front and rear seals. In use, the proper size driver plate is placed in position on the handle, then the proper pilot plate is threaded on to the handle to hold the driver plate snugly in place. This provides a solid assembly which is easy to use with no danger of driver plate or pilot plate pulling off during operation. The handle is specially heat treated to assure long service. A chart shows proper combinations for use on various cars.

A-1417B-B Set. Above set in KRA-40 Metal Box.

Stock No.	Description	Stock No.	Description
A-14-1	7½" Solid Handle	A-14D-86	Driver Plate 2½" Dia.
A-14-7A	Driver Plate 2½" Dia.	A-14P-40	Pilot Plate 1¼" Dia.
A-14-16A	Driver Plate 2½" Dia.	A-14P-44	Pilot Plate 1½" Dia.
A-14-17	Driver Plate 2½" Dia.	A-14P-46	Pilot Plate 1¾" Dia.
A-14-24	Driver Plate 2" Dia.	A-14P-48	Pilot Plate 1½" Dia.
A-14-25	Driver Plate 2¼" Dia.	A-14P-54	Pilot Plate 1½" Dia.
A-14-26	Driver Plate 2½" Dia.	A-14P-58	Pilot Plate 1½" Dia.
A-14D-78	Driver Plate 2½" Dia.	A-14P-60	Pilot Plate 1½" Dia.

BUSHING DRIVER SET

This set will remove and replace bushings on passenger cars and many trucks and tractors. Adaptors are machined to fit

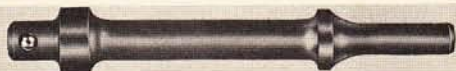
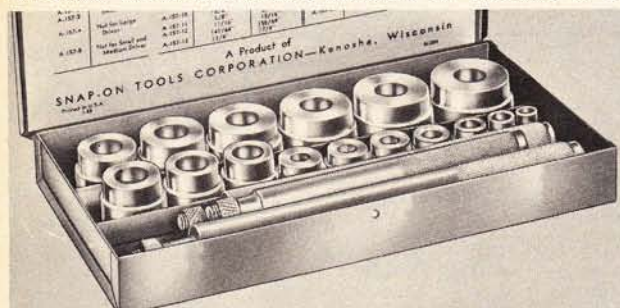
bushings accurately and are held on the threaded driver shafts by a knurled nut. Once secured, they cannot come off during the operation.

Knurled driver handles afford a firm grip and the anvil end is relieved to prevent excessive mushrooming. The small and medium size drivers fit all smaller bushings through the A-157-12, the large driver fits the remainder.

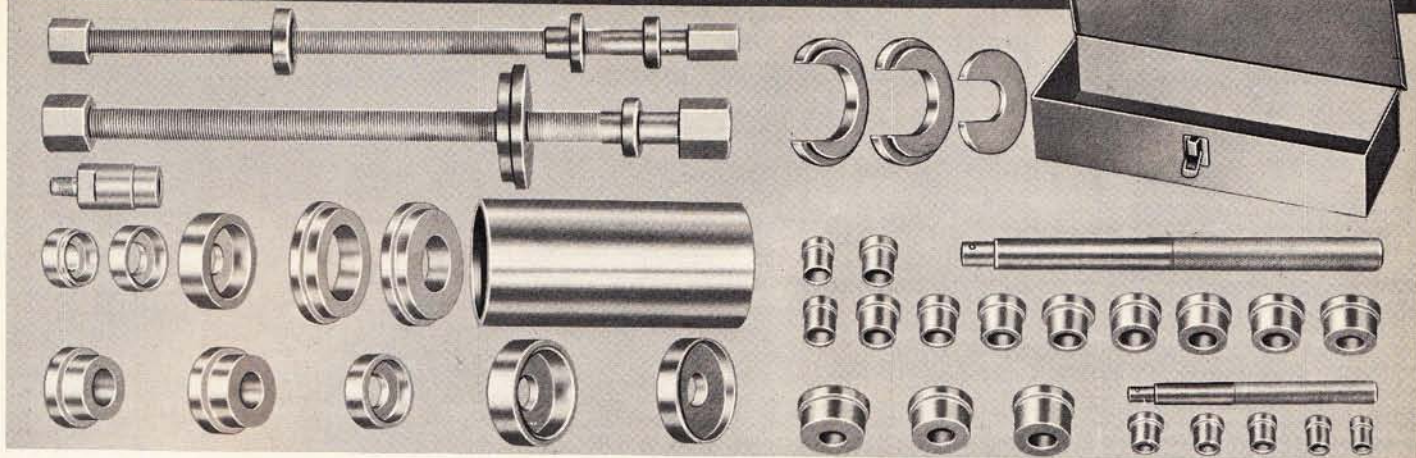
A-157A	Bushing Driver Set. Contains all units listed below and 17 bushing adaptors	Stock No.	For Bushing I.D.	O.D.	Stock No.	For Bushing I.D.	O.D.
A-157-1	Large Driver	A-157-6	⅜" x 7/16"		A-157-14	13/16" x 15/16"	
A-157-2	Medium Driver	A-157-7	7/16" x 1/2"		A-157-15	5/8" x 5/8"	
A-157-3	Small Driver	A-157-8	1/2" x 9/16"		A-157-16	3/4" x 1"	
A-157-4	Nut for A-157-2 and for A-157-3	A-157-9	9/16" x 11/16"		A-157-17	1" x 1 1/8"	
A-157-5	Nut for A-157-1	A-157-10	5/8" x 3/4"		A-157-18	1 1/8" x 1 3/8"	
KRA-113	Metal Box	A-157-11	3/4" x 1"		A-157-19	1 1/8" x 1 1/4"	
		A-157-12	1 1/8" x 1 3/8"		A-157-20	1 3/8" x 1 5/8"	
		A-157-13	1 3/8" x 1 5/8"		A-157-21	1 5/8" x 1 3/4"	
					A-157-22	1 3/4" x 1 7/8"	

OPTIONAL AIR HAMMER ADAPTOR FOR ABOVE

PH-75 Bushing Driver. This unit is designed to be used with present and earlier models of the SNAP-ON Air Hammer (page 136) and the bushing adaptors in above set. Spring loaded friction ball holds adaptors on the unit. Black finish, 5½" long.



BUSHING INSERTER AND REMOVER SETS



Provide an easier way to remove tight bushings and install new ones without damage. Standard and specialized bronze, steel, rubber or Enlox bushings can be serviced and the range of adaptor sizes covers practically all shackle and steering bushings through 1967 models. New bushings are inserted easily and quickly by tightening the screw...this forces the bushing into place without hammering or distorting it. The sleeves permit you to force out old bushings and are indispensable on jobs where there is not sufficient room to drive them out.

▲ INSERTER AND REMOVER SET

A-57Q-B Bushing Remover and Inserter Set. Complete with all parts listed at right and shown above. The five smallest adaptors are used only with the small driver. The set comes with the special KRA-104 metal box as shown above. This metal box has baked-on red enamel finish.

A-57Q Above set. Tools only.

Stock No.	Description
A-57-CA	Screw, 1/2"-20 thread
A-57-3	Washer, 1/2" I.D., 1 1/4" O.D.
A-57-14A	Large Bushing Driver
A-57-15	Small Bushing Driver
A-57-35	Screw, 3/8"-18 thread
A-57-36	Sleeve, 4 1/4" long, 2 1/4" I.D.
A-57-37	Sleeve Plate, 1/2" I.D.
A-57-38	Sleeve Plate, 1 1/2" I.D.
A-57-39	Sleeve Plate, 4 1/4" I.D.
A-57-41	Sleeve Plate, 1 1/4" I.D.
ESD-1428	Bearing, 1/2" I.D., 1" O.D.
ME-4A-2	Nut, 1/2"-20 thread
ME-4A-4	Nut, 3/8"-18 thread
ME-11A-1	Bearing, 3/8" I.D., 1 1/8" O.D.

MISCELLANEOUS ADAPTORS

Stock No.	For Bushing I.D.	O.D.	Stock No.	For Bushing I.D.	O.D.
A-57-6	3/8"	7/16"	A-57-16	1 1/2"	7/8"
A-57-7	7/16"	1/2"	A-57-17	7/16"	1/2"
A-57-8	1/2"	5/8"	A-57-18	1/2"	5/8"
A-57-10	5/16"	3/4"	A-57-20	1 1/4"	1 1/8"
A-57-13	1"	1 1/8"	A-57-25	3/4"	1 1/4"
			A-57-26	1/2"	5/8"

CHEVROLET ADAPTORS for—

A-57-5	6-Cyl. King Bolt Bushing (also fits 1960 Mercury stabilizer bushing)
A-57-11	6-Cyl. Knee Action King Bolt Bushing
A-57-12A	1 1/2 Ton Truck Front Spindle Bushing
A-57-19	6-Cyl. Water Pump Bushing
A-57-22	Truck Spindle Bushing
A-57-27	Spring Shackle Puller
A-57-44	Front Rubber Bushing Replacer
A-57-45	Front Rubber Bushing Replacer
A-57-46	Rear Spring Bushing
A-57-49R	L. Control Arm Inner Bushing

FORD ADAPTORS for—

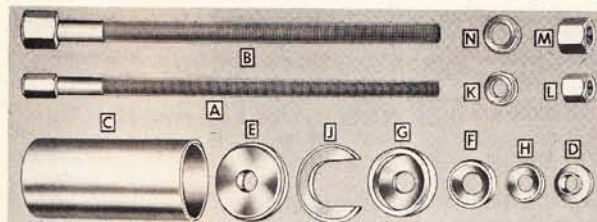
A-57-23A	Spindle Bushing
A-57-24	Stabilizer Rubber Bushing
A-57-29	F-7 and F-8 Truck King Pin Bushing
A-57-40	Truck Rear Bushing
A-57-42	Front Rubber Bushing Remover
A-57-43	Front Rubber Bushing Replacer
A-57-47	Rear Spring Bushing
A-57-48	Truck Rear Bushing

FORD AND CHEV. ADAPTORS for—

A-57-50	Idler Arm Bushing Remover (1 1/2")
A-57-51R	Idler Arm Bushing Remover (1 7/8")

IDLER ARM BUSHING SERVICE SET

A-5713 Idler Arm Bushing Service Set. Gives you an excellent and economical set for this front end work. Its pressure screw power can be augmented with an impact wrench to make light work of tough, idler arm bushings on Chevrolet, Ford,



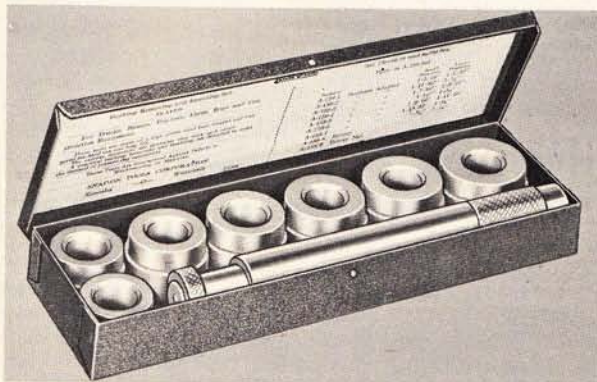
and several other makes of automobiles. The parts can also be used for various bushing applications.

With this set you can do a real job on the frequently difficult-to-remove idler arm bushings. There is no need to remove the idler arm from the car, nor is there any need to spend considerable time and energy cutting or burning the "frozen" bushing from its housing. Handle these jobs easily while saving time and increasing your profits. You can install all types of idler arm bushings, including the rubber, ball bearing, and nylon units, with this new set. Provides a superior method to speed this front end work.

Contents of Set

Key	Stock No.	Description
A	A-57CA	Screw, 1/2"-20 thread
B	A-57-35	Screw, 3/8"-18 thread
C	A-57-36	Sleeve, 2 1/4" I.D., 4 1/4" long
D	A-57-37	Sleeve Plate, 1/2" I.D.
E	A-57-38	Sleeve Plate, 1 1/2" I.D.
F	A-57-42	Front Bushing Remover
G	A-57-43	Front Bushing Replacer
H	A-57-46	Rear Spring Adaptor
I	A-57-50	Idler Arm Bushing Remover
J	ESD-1428	Bearing, 1/2" I.D., 1" O.D.
K	ME-4A-2	Nut, 1/2"-20 thread
L	ME-4A-4	Nut, 3/8"-18 thread
M	ME-11A-1	Bearing, 3/8" I.D., 1 1/8" O.D.

HEAVY DUTY BUSHING DRIVER SET FOR TRUCKS, TRACTORS AND BUSES



A-158 Heavy Duty Bushing Driver Set, in metal box. This set is designed for removing and replacing bushings on trucks, tractors and buses. It covers a range of sizes from 1 1/16" through 1 3/4" inside diameter bushings. The seven adaptors, the driver and driver nut are carefully heat treated and tempered to assure long life. Adaptors are secured to threaded driver shaft by a knurled nut. Knurled handle affords firm grip. Listed are a few of the truck and tractor bushings this set will handle.

Autocar	1 1/32" Steering Knuckle
Caterpillar	1 1/16" & 1 3/4" Piston Pins
GMC Truck	1 1/32" Piston Pin
Hercules	1 1/32" & 1 1/2" Piston Pins
International	1 1/32" Piston Pin
International	1 1/32" Steering Knuckle
John Deere Tractor & Combine	1 1/32" & 1 3/4" Piston Pins
Mack Truck	1 1/16" & 1 1/8" Piston Pins
Mack Truck	1 1/16" Steering Knuckle
McCormick-Deering	1 1/16" Piston Pin
White Truck	1 1/16" Steering Knuckle

BUSHING ADAPTORS

Stock No.	Small Diameter	Large Diameter
A-158-1	1 1/4"	1 7/8"
A-158-2	1 1/2"	1 7/8"
A-158-3	1 3/4"	1 7/8"
A-158-4	1 1/2"	1 7/8"
A-158-5	1 3/4"	1 7/8"
A-158-6	1 1/2"	1 7/8"
A-158-7	1 3/4"	1 7/8"
A-158-8 Driver		A-158-9 Driver Nut

OPTIONAL POWER DRIVER FOR ABOVE SET

PH-79 Bushing Driver. This new driver is designed to be used with the air hammer shown on page 136 and the bushing adap-

tors in the A-158 Set above. It is not included in the set.

Snap-on UNIVERSAL STEERING WHEEL PULLER SET

PROVIDES AN EASIER, FASTER AND BETTER WAY TO DO THIS JOB

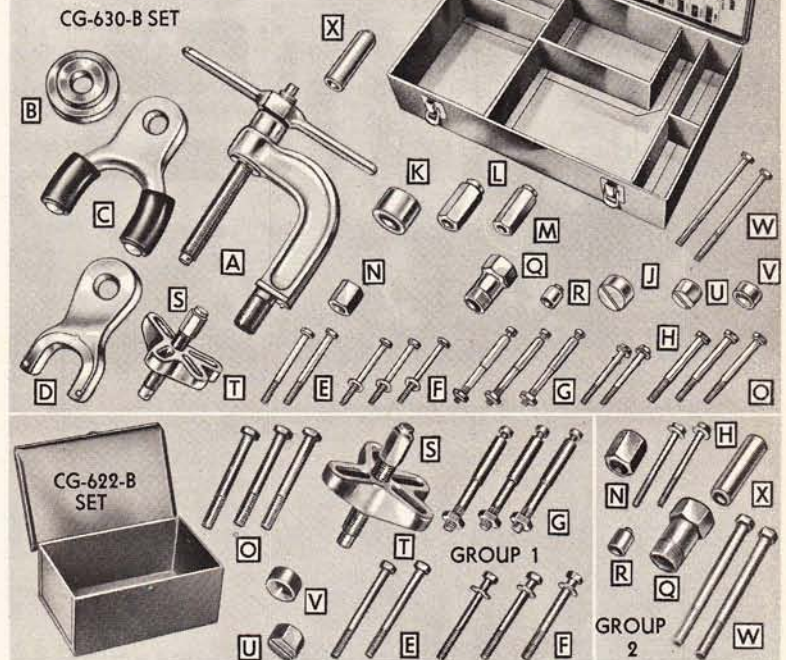
Handles all cars and trucks

Here are all the units you need for fast, safe removal of steering wheels on cars and trucks. Practically all of the newer models require the Yoke Puller and its related parts to pull tapped wheel hubs, etc., while the Fork Puller and interchangeable parts are needed for older models.

These tools place smooth, powerful pressure at exactly the right point to assure a fast, safe job. The pressure screw in the Frame Puller does not turn... it is milled its entire length and works through a threaded bushing and key—thereby eliminating any possibility of damage to the shaft. Pressure screw and forks are in positive alignment, and the forged "I" beam standard does not permit give or spring. The narrow fork has brass insert, the wide fork has rubber sleeves to protect the steering column. Adaptors protect shaft and wiring from injury.

CG-630B Universal Steering Wheel Puller Set. Consists of all the parts shown above and listed below, in KRA-106 special metal case.

CG-630 Set. The above set without the case.



- (A) CG-60H..... Frame Assembly
- (B) CG-60-2..... Frame Nut
- (C) CG-60-3..... Wide Fork
- (D) CG-60-4..... Narrow Fork
- (E) CG-60-7-4..... 5/16" N.F. Studs (2)
- (F) CG-60-7-6..... 5/16" N.C. Studs (3)
- (G) CG-60-7-7..... Buick Studs (3)
- (H) CG-60-7-9..... 1/4" N.F. Studs (2)
- (I) CG-60-11A..... Slotted Adaptor
- (J) CG-60-12-1..... Large Truck Adaptor
- (K) CG-60K1 Ford Shock Puller
- (L) CG-60K2 Chevy Shock Puller
- (M) CG-60M1 1952-64 Buick, Cadillac Adaptor
- (N) CG-60M2 3/8" N.C. Studs (3)
- (O) CG-60N2 1953-64 Nash, Rambler Adaptor
- (P) CG-60N3 1953-64 Nash, Rambler Screw Adaptor
- (Q) CG-60R1 Yoke Pressure Screw
- (R) CG-60R2..... 4-Way Yoke
- (S) CG-60R3 Yoke Screw Adaptor
- (T) CG-60R4..... Buick Adaptor
- (U) CG-60C-2 3/8" N.C. Studs (2), Chrysler, Imperial, DeSoto.
- (V) CG-60C-1 Chrysler, Imperial, DeSoto Adaptor
- (W) KRA-106... Special Metal Case

BASIC YOKE TYPE PULLER SET

CG-60G-B Yoke Set. (Group 1 parts only.) Services most tapped hubs. Consists of the parts listed below. In KRA-111A special case.

CG-60G Set. Above set without the case.

- (S) CG-60R1..... Yoke Pressure Screw
- (T) CG-60R2..... Four Arm Yoke
- (U) CG-60R3..... Pressure Screw Adaptor
- (V) CG-60R4..... Buick Adaptor
- (E) CG-60-7-4..... 5/16" N.F. Studs (2)
- (F) CG-60-7-6..... 5/16" N.C. Studs and Nuts (3)
- (G) CG-60-7-7..... Buick Studs (3)
- (O) CG-60M2..... 3/8" N.C. Studs (3)

COMPLETE YOKE TYPE PULLER SET

CG-622-B Complete Yoke Set. (Groups 1 and 2.) All the parts in the Basic Yoke Set plus the additional parts listed below. In KRA-111A metal case.

CG-622 Set. Above set without the case.

- (H) CG-60-7-9..... 1/4" N.F. Studs (2)
- (N) CG-60M1..... 1952-64 Cadillac Adaptor
- (O) CG-60N2..... 1953-64 Nash, Rambler Adaptor
- (P) CG-60N3..... 1953-64 Nash, Rambler Adaptor
- (W) CG-60C-2..... 3/8" N.C. Long Studs (2)
- (X) CG-60C-1..... Adaptor

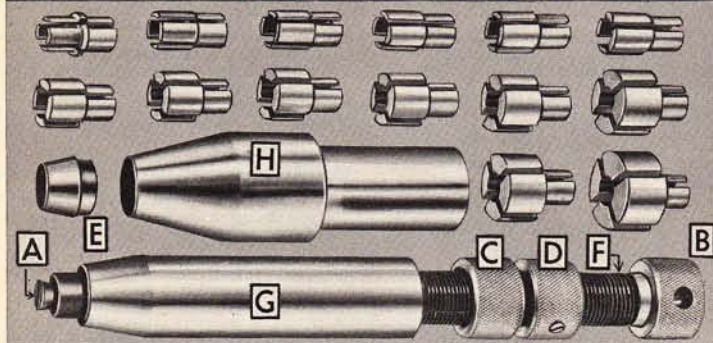
OPTIONAL LARGE FORK

CG-60-4B Steering Wheel Puller Fork. Fits the 2" diameter posts now being used on many Chevrolet, GMC, White, Reo, Studebaker, Mack, International, Diamond T, and other trucks.

It is similar to the (D) CG-60-4 Fork but it has a larger milled opening to allow it to be used on the larger steering wheel posts now being used in these trucks.

This large fork is not included in the sets listed, but is available as an optional unit.

Snap-on CLUTCH ALIGNING TOOL SET



A-37H Clutch Aligner Set. For use on cars and trucks with standard transmissions, including many foreign cars. This tool locks in the clutch pilot bearing to leave the operator's hands free to replace and tighten the compressor plate. The set provides a quick, accurate clutch aligning service for the complete range of automotive single disc clutches.

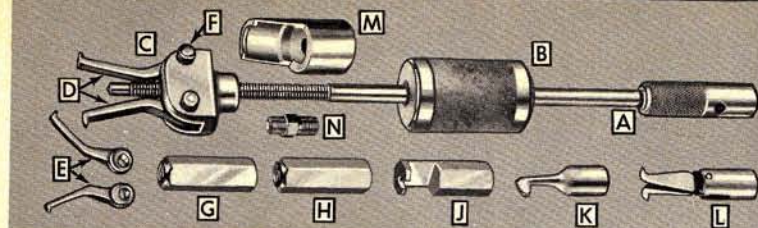
Place the correct size of pilot on the tool and expand it tightly in the pilot bearing—then adjust the sliding tapered sleeve to center the clutch plate and to hold it in place while you complete the assembly.



A-37H Clutch Aligner Set contains the following:

Stock No.	Description	Stock No.	Description	Stock No.	Description
A A-37-3	Rod and Taper Bushing	A-37-9	.625" Collet	A-37-25	.562" Collet
B A-37-4A	Centralizer Knob	A-37-10	.750" Collet	A-37-27	.812" Collet
C A-37-5A	Centralizer Nut	A-37-11	.590" Collet	A-37-28	.656" Collet
D A-37-15A	Centralizer Collar	A-37-12	.668" Collet	A-37-29	1.00" Collet
E A-37-22	Centralizer Locator	A-37-13	.786" Collet	A-37-30	.500" Collet
F A-37-23B	Centralizer Tube	A-37-14	.984" Collet	A-37-31	.578" Collet
G A-37-2	1 1/4" Sleeve	A-37-17	1.181" Collet	A-37-33	.875" Collet
H A-37-6	1 1/2" Sleeve	A-37-18	.718" Collet		

SMALL VERSATILE PULLER SET....CAMSHAFT BEARING INSERTER



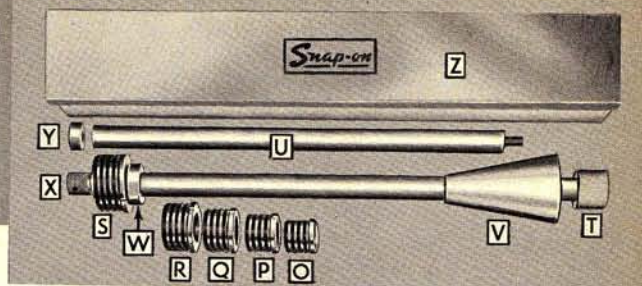
A UNIVERSAL PULLER FOR MANY SMALL JOBS

CJ-93A Small Slide Hammer Puller Set. Remove small bushings, seals sleeves, bearings, bronze or oilite bushings, pressed in bolts, etc. The slide hammer and screw provide necessary pulling power for breaking loose tight fitting parts. The bearing puller head assembly has two pairs of jaws... the larger jaws remove bronze or oilite bushings without crushing them, the smaller jaws have many applications. The expandable grease retainer adaptor pulls seals on power steering units, water pumps, various bearings and races. The bearing hook removes seals with the shaft in place. Body dent adaptor removes dents and creases in body and fender panels. Two stud puller heads pull pressed in studs which have exposed threads.

CJ-93A Set Contains one each of the following:

Stock No.	Description	Stock No.	Description
A CJ-93-1	Slide Screw	H CJ-93-7	3/16"-24 Stud Adaptor
B CJ-93-2	Slide Hammer	J CJ-93-6	Body Dent Adaptor
C CJ-93-3-1	Jaw Holder	K CJ-93-5	Bearing Hook
D A-78-3	Large Jaw (2 Req.)	L CJ-93-4	Grease Retainer Adapt.
E A-78-4	Small Jaw (2 Req.)	M CJ-93-9	Windshield Wiper Arm Assembly Puller
F A-78-6A	Jaw Pin (2 Req.)	N CJ-93-10	Spring Shackle Pin Adaptor
G CJ-93-8	3/8"-24 Stud Adaptor		

CJ-93 Small Industrial Puller Set. The above set without the special automotive service parts CJ-93-9 and CJ-93-10.



CAMSHAFT INSERTER AND REMOVER SET

GA-285 Camshaft Bearing Inserter is a complete set that will remove or insert camshaft bearings in all engines from compact cars to heavy duty trucks. It fits both slightly undersize or oversize as well as standard size bearings. It consists, as illustrated, of a driving shaft extension, expander unit (fits either shaft or extension), five split driving plugs, two driving collars, and a centering cone, complete in its own metal case. Range of set is from 1.120 to 2.690. The expander unit has a neoprene sleeve over which the split driving plugs are mounted and expanded to size. Driving plugs have neoprene "O" rings which, with the neoprene sleeve, provide shock absorbers to protect the bearing.

Set Consists of the Following Parts

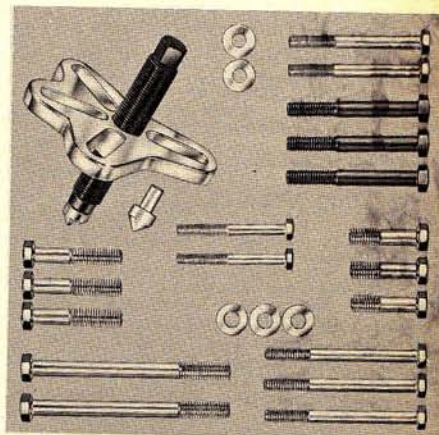
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| <p>① GA-285-1 Expanding driver range from 1.475 to 1.700</p> <p>GA-285-2 Set of 4 "O" rings for the GA-285-1</p> <p>② GA-285-3 Expanding driver range from 1.700 to 1.925</p> <p>GA-285-4 Set of 4 "O" rings for the GA-285-3</p> <p>③ GA-285-5 Expanding driver range from 1.925 to 2.150</p> <p>GA-285-6 Set of 4 "O" rings for the GA-285-5</p> <p>④ GA-285-7 Expanding driver range from 2.150 to 2.375</p> <p>GA-285-8 Set of 4 "O" rings for the GA-285-7</p> | <p>⑤ GA-285-9 Expanding driver range from 2.375 to 2.690</p> <p>GA-285-10 Set of 4 "O" rings for the GA-285-9</p> <p>⑥ GA-285-11 Driver bar unit</p> <p>GA-285-12 Driver bar ext.</p> <p>⑦ GA-285-13 Guide Cone</p> <p>⑧ GA-285-18 Washer, large</p> <p>⑨ GA-285-14 Expander assembly made up of GA-285-15 knurled expander cone, GA-285-16 set of 4 expander jaws and GA-285-17 expander sleeve. Range 1.120 to 1.475.</p> <p>⑩ GA-285-19 Washer, small</p> <p>⑪ GA-285-20 Metal Box</p> |
|---|---|

BOLT-GRIP PULLER SET WITH 2/3-WAY YOKE

This Puller Set is designed to remove the harmonic balancer or lower crankshaft pulley on most automobiles. It is especially useful on Chevy V-8 engines. Highly versatile, this puller can be used for either 2 or 3-way pulling jobs and can also be used as a steering wheel puller or as a gear pulley puller on units which have tapped holes. Electric motors, lawn mowers, outboard motors which have tapped holes in their flywheels, gears or pulleys can also be serviced with this versatile tool. The Set consists of a pressure screw and yoke, two expansion plugs, 15 bolts and 5 washers. Six different bolt sizes are provided which should handle virtually all harmonic balancers. Additional bolts with different thread sizes can be obtained from local hardware stores for specific pulling problems.

CJ-98C Puller Set consisting of the following 26 items in plastic tray.

Stock No.	Quantity	Part Description
CJ-98-1	1	Puller Yoke
CJ-83-3	1	Pressure Screw
CJ-84-16	1	Expansion Plug (large)
66-15-3	1	Expansion Plug (small)
ME-3A-6	3	3/8"-16 NC x 2" bolt
ME-3A-7	2	3/8"-16 NC x 4 1/2" bolt
ESD-504	3	3/8"-16 NC x 3" bolt
ME-3A-8	2	1/4"-28 NF x 2 1/2" bolt
ME-3A-9	3	3/8"-18 NC x 3 1/2" bolt
ME-3A-10	2	3/8"-24 NF x 3" bolt
ME-3A-15	3	3/8"-24 NF x 1 1/2" bolt
ME-5A-14	2	Washer for 1/4" bolt
ME-5A-15	3	Washer for 3/8" bolt



GENERATOR PULLEY PULLER

① **CJ-88 Generator Pulley Puller.** Works on practically every make of car or light truck with little danger of damage to the pulley or the generator. Capacity ranges from 1 1/4" to 4 1/4". The two sections slide together on side shafts to fit the job and wing nuts lock the position. Actual pulling may be done with the CJ-83B or CJ-87 Timing Gear Pullers, each section has a 3/8"-16 tapped hole to accept the threaded studs, or jaw-type pullers may be hooked behind the slide shafts. Forged steel sections taper to the center for easy entry.

BEARING SEPARATORS

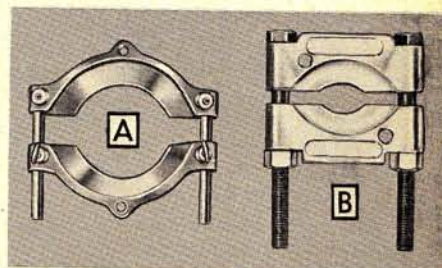
② For separating and pulling double bearings, closely fit gears, etc. Use with 2 jaw or slotted yoke pullers.

CJ-949 Separator. 1" O.D. Cap. Use with small pullers on 5/16"-18 studs.

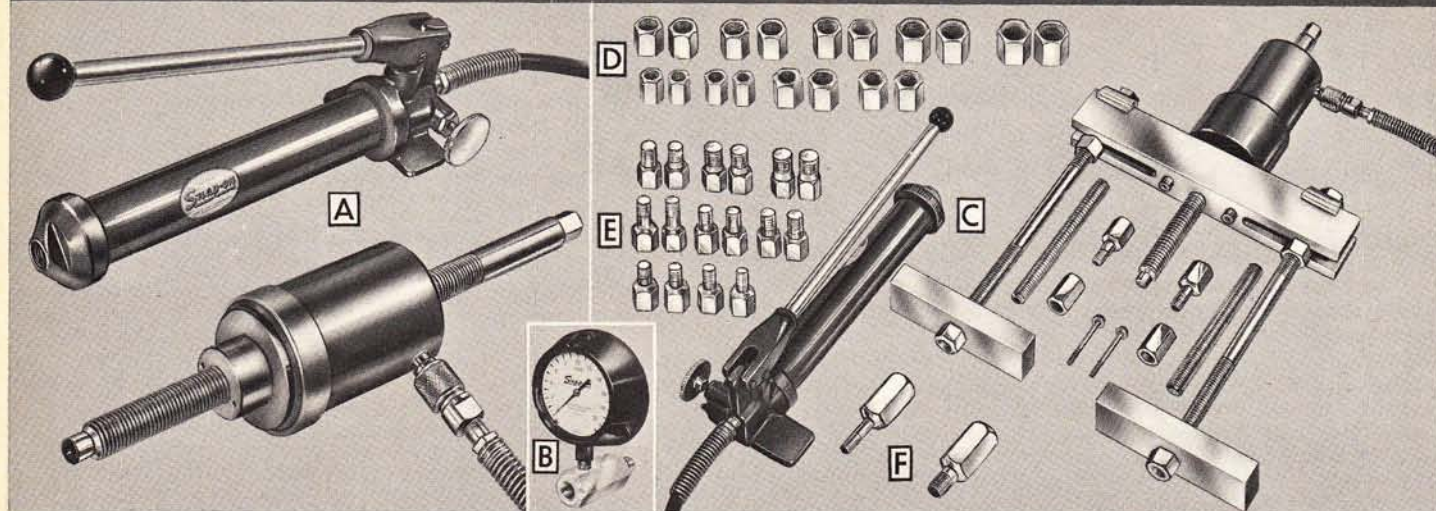
CJ-950 Separator. 2 1/4" O.D. Cap. Use with CJ-83B, CG-250A or 3/8"-16 studs.

CJ-951 Separator. 4 1/4" O.D. Cap. Use with CJ-84C, CG-270A or 3/8"-18 studs.

CJ-952 Separator. 5 3/4" O.D. Cap. Use with CG-300 or CJ-84C or 3/8"-18 studs.



Snap-on 20-TON HYDRAULIC PULLER SETS



RAM, PUMP, HOSE AND COUPLER

(A) CG-420A Set Assembly. Consists of the CG-420-1A Ram, CG-420-2A Pump, CG-420-3-1 Hose and CG-420-4 Quick Coupler assembly. It is a 20 ton hydraulic, hollow center ram and pump which can be adapted to hundreds of applications in the mechanical and industrial fields for pushing, pulling and pressing, quickly, safely and efficiently.

THE CG-420-1A RAM is 4" in diameter and 6" long. It has a 2" stroke and has a spring return which brings plunger back when pressure is released. Ram is threaded for attachment to various yokes and adaptors. Ram and adaptor can be used on the outside of a puller yoke—an exclusive feature—that provides an additional 6" longer reach. This also places yoke closer to work which prevents bucking or rolling during operation. Has 4 tapped holes to facilitate mounting to attachments, fixtures, floor press etc. Pressure screw has 1 1/8"-8 thread.

THE CG-420-2A PUMP is hand operated, single stage, single action with .172 cubic inch displacement per stroke. It is equipped with an accumulator sack which allows pump operation in any position, eliminates back pressure and helps keep oil free from contamination. Ball type valves are used and valve seats are replaceable which greatly increases life of pump. The cylindrical pump measures 2 1/4" diameter and is 16 1/2" long. The 18 1/4" handle provides ample leverage for easy pump operation. A built-in safety valve automatically releases pressure as soon as 9200 p.s.i. is reached. At this pressure 20-tons of force are applied by the ram. A pressure release screw releases all pressure in pump, ram and hose. Hose is 6 feet long.

(B) CG-420-5A Pressure Gauge. Calibrated for use with our 10, 20 and 50-ton hydraulic pullers. Shows amount of pressure applied. 3 1/2" dial.

CG-420-6 Gauge Adaptor. For attaching gauge to the 20 and 50-ton units.

CG-120-15 Gauge Adaptor. For attaching gauge to the BJ-4-2A Pump in the CG-122 10-ton unit.

HEAVY DUTY BAR-TYPE PULLER HAS MANY USES

CG-450 Heavy Duty Bar-Type Puller. Pulls parts with openings or tapped holes a minimum of 6" apart. Adaptors are included which have 7/8"-14 internal threads to fit side rods and 5/8"-18 external threads to fit tapped holes in CJ-951 and CJ-952 bearing separators. The CG-450 consists of the following parts:

Two CG-350-3 Long Side Rods
Two CG-350-4 Short Side Rods
Two CG-350-5 Side Rod Connecting Nuts
Two CG-350-6 2 1/2" x 1 1/4" x 8" Adpt Blocks
Six CG-350-7 7/8" Hex Nuts
Two CG-350-8 Slip Washers
Two CG-350-9 Bearing Separator Adaptors
One CG-450-10 Hydraulic Yoke
Two CG-450-11 1 1/2"-13 x 3/4" Socket Head Cap Screws
Two CG-450-12 5/16"-18 x 3" Cap Screws
One CG-425-9 Ram Adaptor

(C) CG-450HYA Complete Puller Set consists of CG-420A Set Assembly and CG-450 Puller (above).

Available for use with the CG-450 Puller is the CG-455 Set of Male Adaptors for use when a tapped gear or wheel is to be pulled, and for pressing when tapped holes sur-

round the piece being worked on. Also, the CG-455A Set of Female Adaptors, used when studs surround the piece to be pulled. Also, two Pressure Screw Adaptors, CG-455-18 and CG-455-19 for hook-ups where the CG-450 must be used as a "pusher" so that the Power Ram Screw "pulls."

(D) DOUBLE FEMALE ADAPTORS

Two of Each Shown

CG-455-9 5/8"-18	CG-455-13 1 1/8"-12
CG-455-10 3/4"-16	CG-455-14 1 1/4"-8
CG-455-11 1"-14	CG-455-15 1 1/4"-12
CG-455-12 1 1/8"-8	CG-455-16 1 1/2"-8
	CG-455-17 1 1/2"-12

CG-455A Set of 18 Adaptors (two of each).

(E) MALE SIDE ROD ADAPTORS—

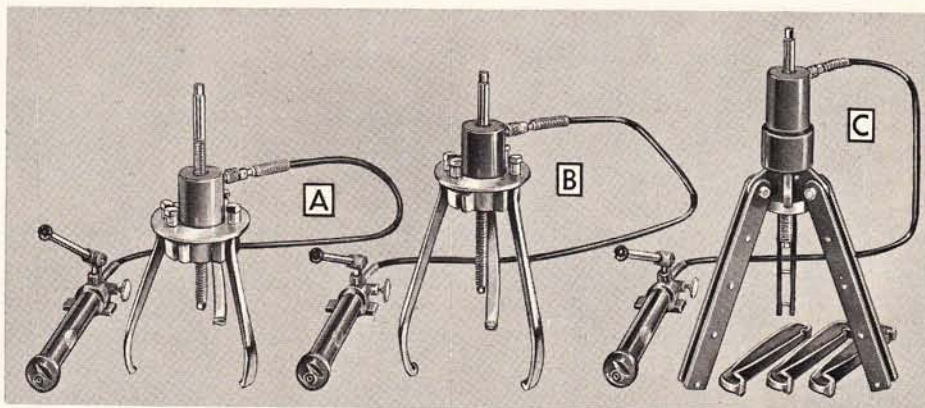
Two of Each Shown

CG-455-1 5/8"-18	CG-455-5 7/8"-9
CG-455-2 5/8"-11	CG-455-6 1"-14
CG-455-3 3/4"-16	CG-455-7 1"-8
CG-455-4 3/4"-10	CG-455-8 1 1/8"-12

CG-455 Set of 16 Adaptors (two of each).

(F) CG-455-18 5/8"-18 Pressure Screw Adaptor.

(F) CG-455-19 7/8"-14 Pressure Screw Adaptor.



EVEN PULLING POWER TO LOOSEN THE TIGHTEST GEAR

CG-400 Puller uses our standard CG-300-3 jaws with a combination yoke (CG-400-2) with a locking plate and studs which thread directly to the ram. The yoke is of 2-jaw and regularly spaced 3-jaw design with provision for specially spaced 3-jaw operation for use on 5-spoked gears and wheels. This yoke has all the locking and safety features of our standard CG-type pullers. Puller has a reach of 9 1/2" and spread of 13". The CG-400 Puller consists of the following:

One CG-400-2 Combination Yoke	Four CG-400-6 Springs
Three CG-300-3 Jaws	Four CG-400-7 Adj. Studs
One CG-400-5 Locking Plate	

(A) CG-400HYA Hydraulic Puller Set consists of the CG-420A Set Assembly and the CG-400 Puller.

CG-405 Puller same as the CG-400 except it has the CG-305-9 jaws to provide 14" reach and 15" spread.

(B) CG-405HYA Hydraulic Puller Set consists of CG-420A Set Assembly and CG-405 Puller.

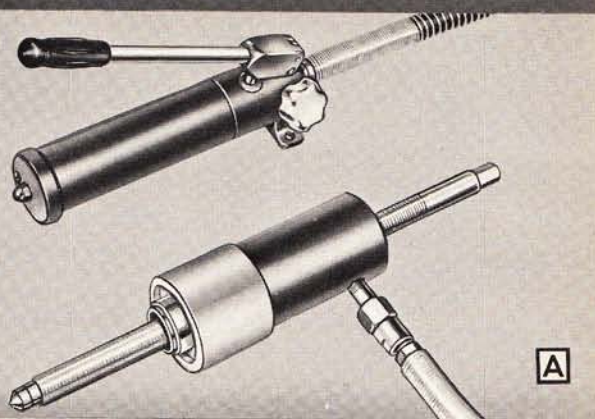
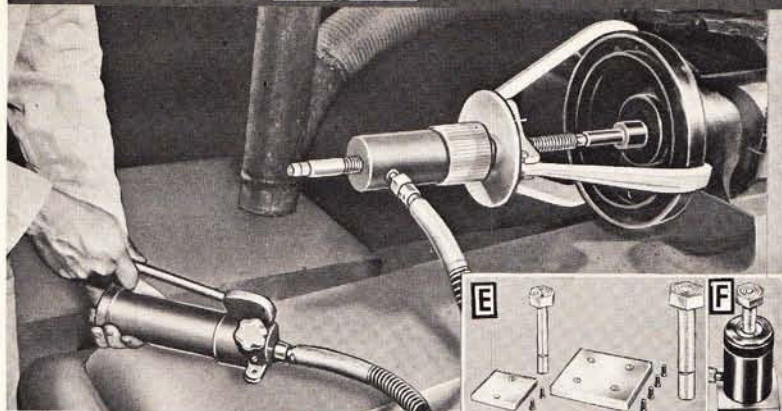
EXTRA HEAVY DUTY PULLER FOR THOSE TOUGH JOBS

CG-425 Puller has adaptors which allow the ram to be attached to the yoke for various pulling operations. This Puller will handle gears and pulleys up to 20" diameter and has a reach of 19". Adaptable as either a 2-jaw or 3-jaw puller. Yokes and jaws are heat treated malleable iron, comparable in strength to heat treated alloy forgings. The CG-425 Puller consists of the following:

One CG-325-2 Yoke	Three CG-325-5 Arm Bolts
Three CG-325-3 Jaws	Three CG-325-6 Arm Nuts
Three CG-325-4 Side Arms	One CG-425-7 Washer Adaptor
Two CG-425-8 1 1/2"-13x4 1/2" Socket head cap screws	
One CG-425-9 Ram Adaptor	

(C) CG-425HYA Hydraulic Puller Set consists of the CG-420A Set Assembly and the CG-425 Puller. Adaptors are required to adapt ram to puller, or puller to part being worked on. CG-425-9 Adaptor used for mounting ram on top of puller. This allows closer hook-up for pulling and reduces danger of rolling. CG-425-7 Adaptor is used as retainer with the CG-425-9 when adapting ram to CG-425 puller.

Snap-on 10 TON HYDRAULIC PULLER SETS



THE ANSWER TO SMALL BUT TOUGH PULLING JOBS

These 10-ton hydraulic pullers handle hundreds of pushing, pulling and pressing jobs quickly and safely . . . make easy work of stubborn jobs within their size range. No more galled shafts — no more damaged parts through heating, prying or hammering. A few easy strokes of the pump handle does the job — down-time can be cut from hours to minutes. Two jaw-type sets and a bar-type set are available complete with pump and ram assembly . . . if you buy one set you may add the parts from the other sets for use with your hydraulic unit.

THE HYDRAULIC PUMP HAS AUTOMATIC SAFETY VALVE

A **CG-122 Ram and Pump Set.** Consists of CG-120 Ram, BJ-4-2A Pump, BJ-4-3B Hose and BJ-4-4 Coupler. Provides hydraulic power for many pullers. Pump has automatic cutout at 10 tons pressure to protect against overloading. Accumulator sack permits operating pump in any position . . . eliminates back pressure . . . keeps oil free from contamination. Spring loaded ram automatically retracts the workhead when pressure is released. Ram is 4 3/4" long, 2 5/8" diameter with a 16 1/4" pressure screw. Screw has a 5/8" hex head and free moving center tip. The six foot hose has 1/2" I.D., and has spring guards on each end. Coupler allows hose removal without fluid loss. CG-420-5A Pressure Gauge with CG-120-15 Adaptor can be used with this pump unit to show pressure applied. Use with CG-270-16 Adaptor and either CG-270-15 Yoke or CG-273-15 Yoke to add hydraulic power to SNAP-ON's CG-2500-B Set, or to the following series of Pullers: CG-270, CG-273, CG-280, CG-283. Net weight is 14 1/2 lbs.

10-TON JAW-TYPE HYDRAULIC PULLERS

Comparative light weight and compact size allow easy handling and transport. Each set contains both large and small jaws which reverse for inside or outside grip. Spring tension holds the puller onto the job and leaves hands free. Parts included are listed in chart below.

B **CG-275-HY 3-Jaw Yoke Hydraulic Puller Set.**

C **CG-274-HY 2-Jaw Yoke Hydraulic Puller Set.**

PRINCIPAL SPECIFICATIONS OF JAW TYPE PULLERS

PULLER	TYPE	SHORT JAW SPREAD		MAX. REACH	LONG JAW SPREAD		MAX. REACH
		(Outside)	(Inside)		(Outside)	(Inside)	
CG-274-HY	2-Jaw	0-8 1/2"	2 1/2"-7 1/2"	5 3/8"	0-10"	3"-8"	8"
CG-275-HY	3-Jaw	0-8 1/2"	2 1/2"-7 1/2"	5 3/8"	0-10"	3"-8"	8"

10-TON BAR-TYPE HYDRAULIC PULLERS

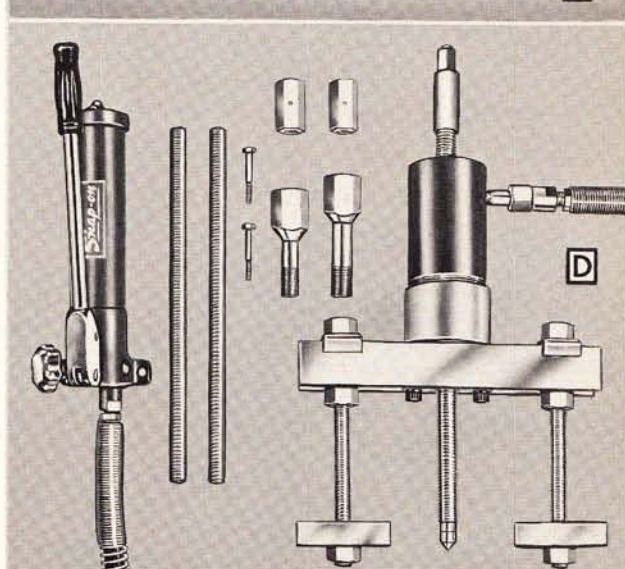
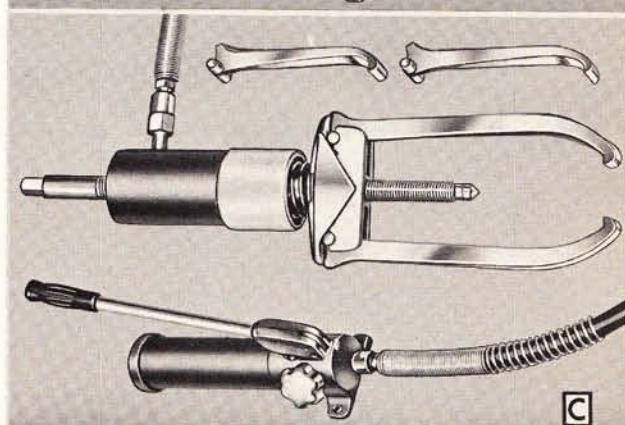
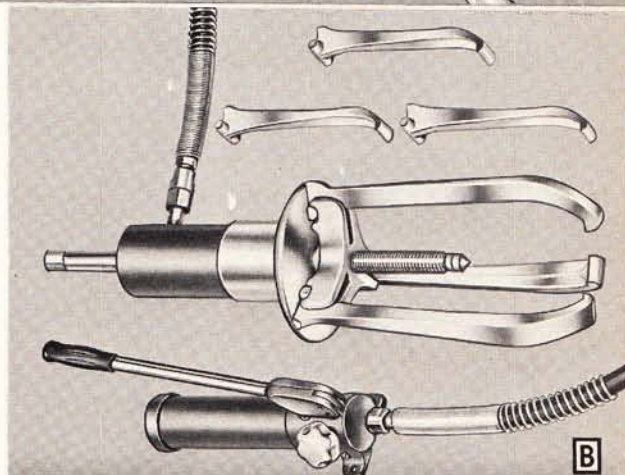
D **CG-150-HY Bar Type Hydraulic Puller Set.** Excellent for a variety of small, tough jobs in shops and industrial plants such as pulling tapered bearings, pulleys, gears, double bearings, wheels, etc. It can also be used on heavy duty road equipment, such as: graders, scrapers, shovels, tractors, etc. for pulling transmission and differential bearings and gears.

Bar yoke permits 10" wide pulls . . . the long and short side rods can be connected to provide enough reach for virtually any job. By reversing the ram you can use the puller as a press or pusher. Its usefulness is increased with available adaptors such as the CJ-84-5 thru CJ-84-18 (page 120), bearing separators, CJ-951 or CJ-952 (page 113). The CG-250 and CG-270 Pullers (page 118) screw directly onto the screw adaptors. The expanding rod in the CG-40B Set (page 127) screws onto the CG-150-B Adaptor and allows hydraulic pressure to remove blind hole bearings.

CG-150 Basic Puller Set. The above set without the Ram and Pump Assembly. For owners of the above hydraulic jaw-type pullers.

PARTS INCLUDED IN SETS

Stock No.	Description	SETS			
		B	C	D	
CG-122	Ram — Pump Set	1	1	1	
CG-270-3	Short Jaws	3	2	—	
CG-270-10	Long Jaws	3	2	—	
CG-273-5	Locking Plate	1	—	—	
CG-270-6	Spring	1	1	—	
CG-273-15	Yoke	1	—	—	
CG-270-16	Adaptor	1	1	—	
CG-270-5	Locking Plate	—	1	—	
CG-270-15	Yoke	—	1	—	
CG-150-2	Yoke	—	—	1	
CG-150-3	12" Side Rods	—	—	2	
CG-150-4	8" Side Rods	—	—	2	
CG-150-5	Rod Conn. Nuts	—	—	2	
CG-150-6	End Blocks	—	—	2	
CG-150-7	Nuts	—	—	6	
CG-150-8	Clip Washers	—	—	2	
CG-150-9	Clip Washers	—	—	2	
CG-150-10	Ram Adaptor	—	—	1	
CG-150-11	Cap Screws	—	—	2	
CG-150-12	Screw Adp't 1/2"-18	—	—	1	
CG-150-13	Screw Adp't 3/4"-16	—	—	1	



JACK ATTACHMENT SETS FOR 10-TON AND 20-TON RAMS

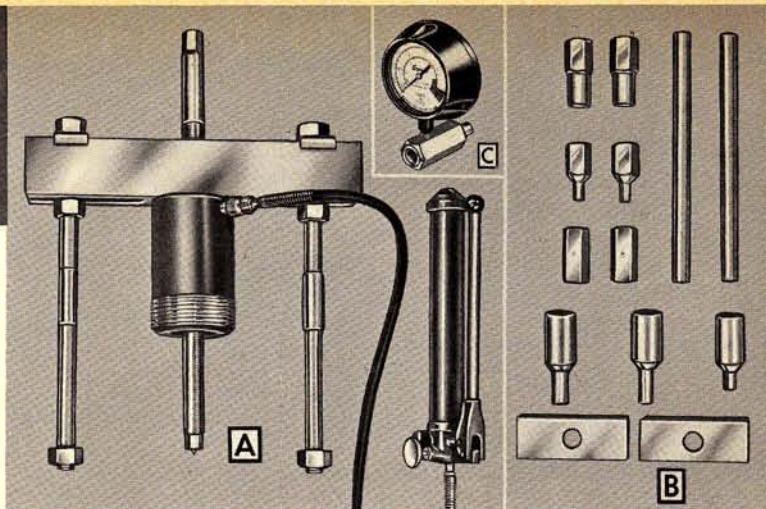
Used with hydraulic rams to level and move machinery. Includes base plate, jack screw and cap screws. Non-skid screw head helps prevent slipping.

E **CG-123 Set.** For use with CG-122 Ram and Pump Set (above).

F **CG-423 Set.** For use with CG-420A Ram and Pump Set (page 114).

50 TON HYDRAULIC PULLER SETS

CG-559 Complete 50-Ton Hydraulic Puller Set handles the really large, really tough jobs. Bar type construction permits pulls up to 24" wide. Ram has 3" stroke and automatically retracts when pressure is released. Pump has automatic cutout to prevent overloads. This set includes the basic hydraulic puller set pressure gauge with adaptor, and a set of accessory parts and adaptors to handle a wide range of pulling problems. Pump, hose and gauge are interchangeable with our 20-ton pullers.



A + B + C CG-559 COMPLETE 50-TON HYDRAULIC PULLER SET Consists of all parts shown above and listed below.

A CG-555 BASIC 50-TON HYDRAULIC PULLER SET Consists of the following parts

CG-520	50-Ton Ram and Pressure Screw
CG-420-2A	Pump
CG-420-3-1	Hose
CG-420-4	Coupler Set
CG-550	Basic Attachment Set (includes following parts)
CG-550-2	Yoke 4" x 4" x 24"
CG-550-3	Side Rods 24" (2)
CG-550-7	Hex Nuts 1 3/8" (6)
CG-550-8	Clip Washers (2)
CG-550-10	Cap Screws 3/8" (2)

B CG-558 PULLER ACCESSORY SET Consists of the following parts

CG-550-4	Side Rods 18" (2)
CG-550-5	Side Rod Connecting Nuts (2)
CG-550-6	End Blocks 3" x 1 1/4" x 8" (2)
CG-550-9	Bearing Separator Adaptors (2)
CG-550-11	Side Rod Adaptors 7/8"-14 (2)
CG-550-12	Work Screw Adaptor 7/8"-14
CG-550-13	Bull Nose Adaptor 1"
CG-550-14	Bull Nose Adaptor 1 1/4"

OPTIONAL PRESSURE GAUGE

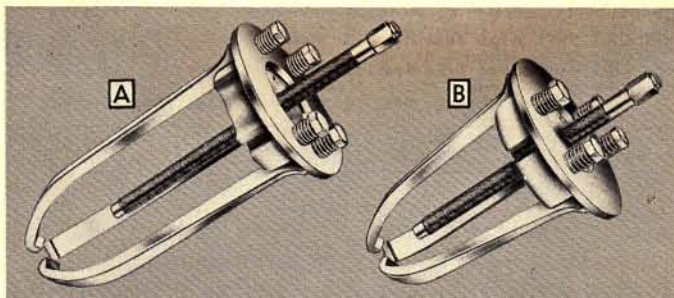
C CG-420-5A Pressure Gauge. Shows amount of pressure applied.
CG-420-6 Pressure Gauge Adaptor. For connecting gauge to ram.

HEAVY DUTY MANUALLY OPERATED GEAR PULLERS

These two pullers are manually operated variations of the CG-400HYA and CG-405HYA Pullers listed on page 114. Instead of using the hydraulic pump and ram, they are fitted with a special plug and screw. Owners of either of the hydraulic pullers can convert to manual operation simply by buying the CG-343-1 4" plug and the CG-300-1 screw or the CG-305-8 screw. The combination yoke can be used for 2-jaw or 3-jaw operation and the three jaws may be spaced in regular or in special spacing for use on 5-spoked gears and wheels. The locking plate holds the jaws tightly onto the job and locking tension is provided through four springs on adjustable studs.

A CG-348 Puller. Has a jaw reach of 14" and a 15" spread. It consists of the following parts:

CG-400-2 Comb. Yoke	CG-305-8 Pressure Screw
CG-305-9 Jaw (3 incl.)	CG-400-6 Spring (4 incl.)
CG-400-5 Locking Plate	CG-400-7 Stud (4 incl.)
CG-343-1 4" Plug	



B CG-343 Puller. Has a jaw reach of 9 1/2" and a 13" spread.

CG-400-2 Comb. Yoke	CG-300-1 Pressure Screw
CG-300-3 Jaw (3 incl.)	CG-400-1 Spring (4 incl.)
CG-400-5 Locking Plate	CG-400-7 Stud (4 incl.)
CG-343-1 4" Plug	

THREE POPULAR SMALL PULLERS

A BEARING PULLER

A-78 Bearing Puller. For smaller bearings in motors, generators, magnetos, clutch pilot bearings, etc. It is a screw puller of the leg type, furnished with two sets of jaws — one for small bearings, the other for bronze and Oillite bushings . . . these latter jaws are so built that they will remove these bushings without crumbling them. The smaller jaws handle clutch pilot bearings and other small bearings. The range of this compact tool with both jaws is 2 5/8" to 1 1/4".

Replacement Parts Available

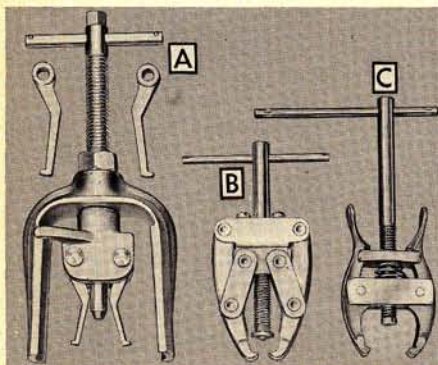
A-78-2	Jaw Holder
A-78-3	Large Jaws (2 required)
A-78-4	Small Jaws (2 required)
A-78-5	Pressure Screw
A-78-6A	Jaw Pins (2 required)
A-78-7	Slide Bar
ESD-1051	Pressure Nut

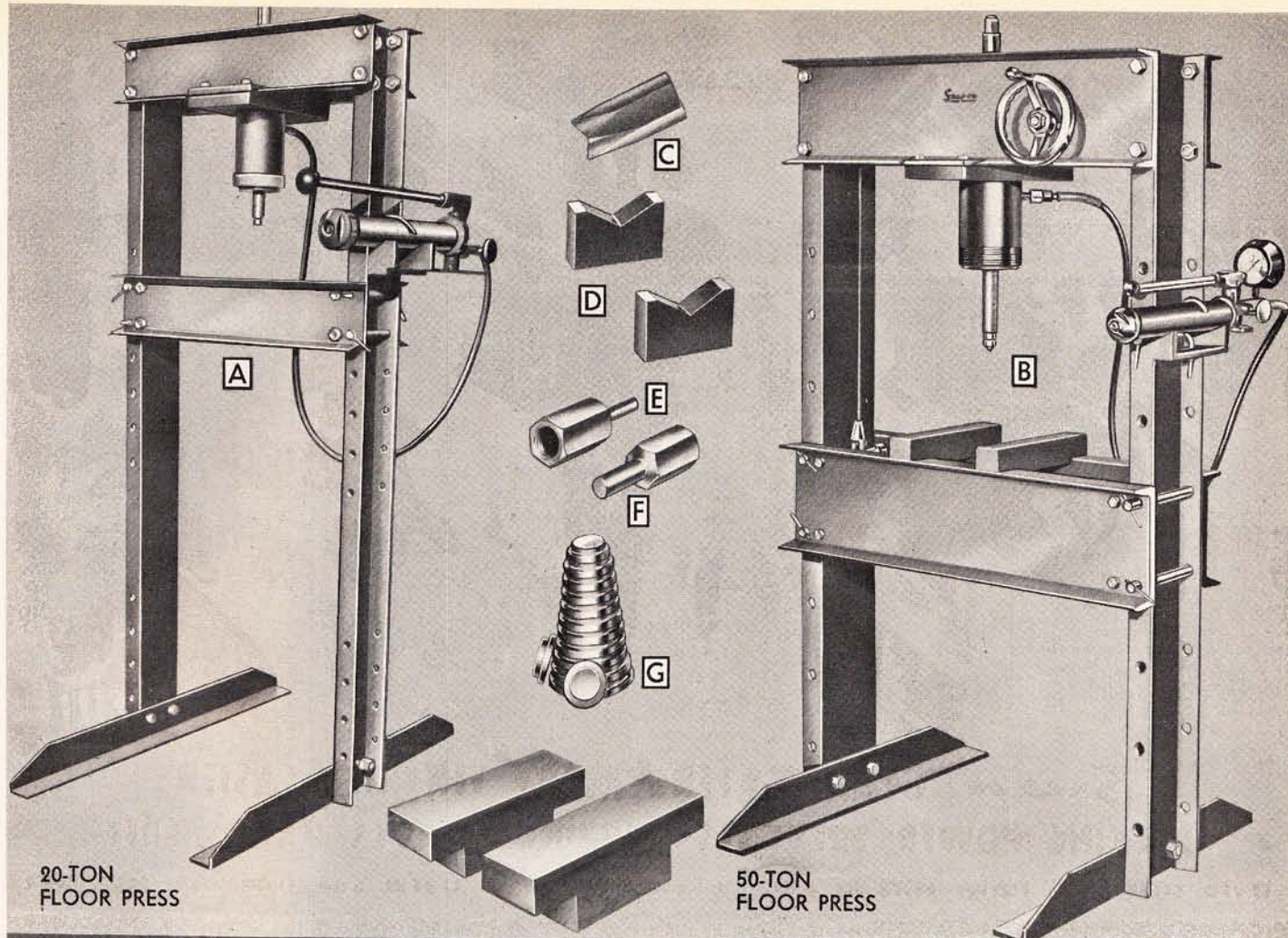
B SMALL GENERAL USE PULLER

CG-30A Small Puller. Spring action closes and holds jaws in position while screw is tightened. Leverage works through the threaded crown and lever arms — the harder the pull — the tighter the grip. Jaws spread to 1 3/4" and accommodate gears up to 3/4" thick. Maximum distance from screw to jaw tips with jaws open is 1 1/2". A good terminal puller.

C BATTERY CABLE PULLER

CJ-92 Battery Cable Puller. Pressure between thumb and forefinger opens jaws. When released, self locking jaws hold themselves in place. A few turns of the screw will lift the tightest cable terminal without damage to either battery case or posts. Also useful for pulling small gears, bearings, etc.





Snap-on FLOOR PRESSES DELIVER TONS OF POWER FOR FAST, EFFICIENT PRESSING, BENDING, STRAIGHTENING, ASSEMBLING OPERATIONS

These powerful presses are ruggedly constructed of channel iron, well proportioned to deliver the maximum power capacity of the hydraulic pump and ram assembly. Garages and industrial shops will find unlimited uses for them in all kinds of bending, straightening, and pressing operations in assembly and maintenance work. Working time can be cut from hours to minutes. The ram can be moved to any desired lateral position to accommodate various work shapes. Two work blocks (included) slide on the work rails for fast positioning beneath the ram, and are held in alignment by the extended boss at the bottom. Work rails are locked in position by four pins and can be raised or lowered in 3" increments on the 20-ton and 6" on the 50-ton units. The pump can be mounted at any desired height for operating convenience.

20-TON PRESS SETS

A CG-470-HYA Complete 20-Ton Floor Press Set. Includes the CG-470A Basic Press Set and the CG-420A Pump and Ram Assembly as illustrated.

CG-470A Basic 20-Ton Set. For present owners of the CG-420A Pump and Ram Assemblies. Includes the frame, work blocks and pump mounting hardware.

50-TON PRESS SETS

B CG-570-HY Complete 50-Ton Floor Press Set. Includes the CG-570A Basic Press Set, CG-421 Pump Assembly Set, CG-420-5A Pressure Gauge, CG-420-6 Gauge Adaptor and CG-520 Ram and Screw.

CG-570A Basic 50-Ton Set. For present owners of the CG-421 Pump and Ram Assembly. Includes the Frame, Work Blocks and Pump Mounting Hardware.

OPTIONAL ACCESSORIES FOR 20-TON FLOOR PRESS

- C** CG-471-1 Pressure Screw Vee Adaptor
- D** CG-471-2 Vee Block (2 required)
- E** CG-471-3 1/2" Bull Nose Screw Adaptor
- F** CG-471-4 3/4" Bull Nose Screw Adaptor

G STEP PLATES

- CG-471-5 1 1/8" x 1 1/4"
- CG-471-6 1 3/8" x 1 3/8"
- CG-471-7 1 7/8" x 1 1/2"
- CG-471-8 2 1/16" x 1 5/8"
- CG-471-9 2 3/16" x 1 3/4"
- CG-471-10 2 5/16" x 1 7/8"
- CG-471-11 2 7/16" x 2"
- CG-471-12 2 5/8" x 2 1/8"
- CG-471-13 2 3/8" x 2 1/8"
- CG-471-14 2 7/8" x 2 3/8"
- CG-471-15 3" x 2 1/2"
- CG-471-16 3 1/4" x 2 3/4"
- CG-471-17 3 1/2" x 3"

CG-471 Complete Set of 18 items above.

OPTIONAL ACCESSORIES FOR 50-TON FLOOR PRESS

- CG-471-5 through CG-471-17 Step Plates
- CG-471-2 Vee Block (2 Required)
- CG-550-13 1" Bull Nose Screw Adaptor
- CG-550-14 1 1/4" Bull Nose Screw Adaptor

Now! Save time with your own hydraulic floor press... don't waste valuable time and profits by sending pressing jobs out. Start making extra money for your own shop with one of these powerful, fast-working units now.

PARTS COMPRISING THE BASIC FLOOR PRESSES

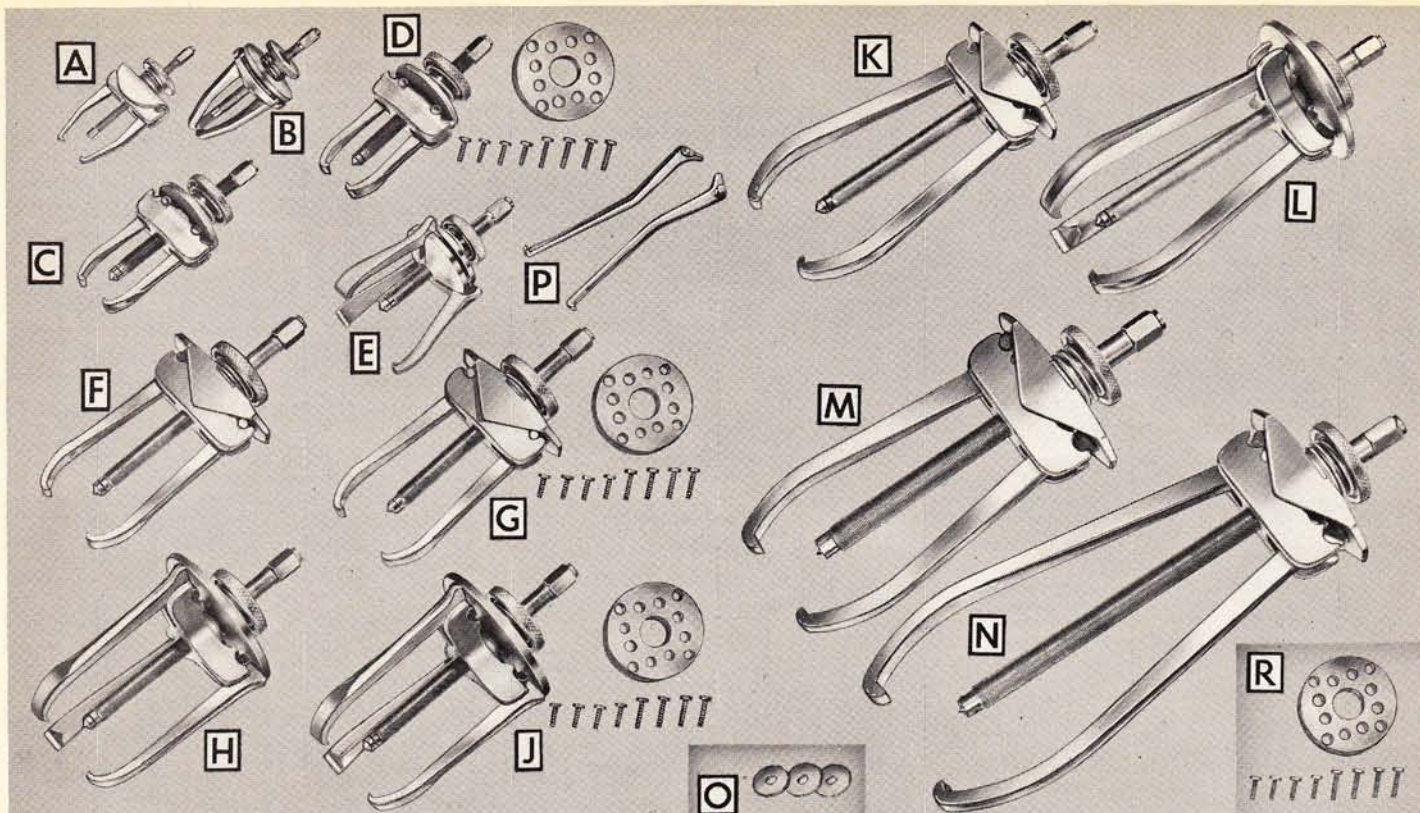
CG-470A 20-Ton Press	Description	CG-570A 50-Ton Press
CG-470	Press Frame	CG-570
CG-470-12	Work Block (2)	CG-570A-12
CG-470-13	Ram Back Plate	CG-570A-13
CG-470-14	Back Plate Gibs (2)	CG-570A-14
CG-470-15	Gib Cap Screws (4)	CG-570A-15
CG-470-16	Pump Bracket Assembly	CG-570A-16
CG-470-17	Back Plate Screw (4)	CG-570A-17

UNITS COMPRISING THE COMPLETE FLOOR PRESSES

CG-470-HYA 20-Ton Press	Description	CG-570-HY 50-Ton Press
CG-470A	Basic Press Set	CG-570A
CG-420A	Pump, Ram, Hose and Coupler Set	—
—	Pump Assembly Set	CG-421
—	Ram and Screw	CG-520
—	Gauge	CG-420-5A
—	Gauge Adaptor	CG-420-6

PRINCIPAL SPECIFICATIONS

CG-470HYA 20-Ton Press	Description	CG-570-HY 50-Ton Press
20 Tons	Capacity	50 Tons
5 Feet	Overall Height	6 Feet
2 x 3 Feet	Base Area	3 x 3 1/2 Feet
2 Feet	Distance Between Vert'l Side Beams	3 Feet
5" Chan'l Iron	Side Beams	8" Chan'l Iron
5" Chan'l Iron	Head Rails	10" Chan'l Iron
5" Chan'l Iron	Work Rails	10" Chan'l Iron
3 Inches	Minimum Work Distance	4 Inches
40 3/4 Inches	Maximum Work Distance	38 1/2 Inches



Snap-on GEAR PULLERS MAKE THE JOB EASIER LOCKING POWER PREVENTS SLIPPING—LEAVES HANDS FREE

SEVEN SIZES OVER ENTIRE POWER RANGE—2-JAW AND 3-JAW SCREW AND SLIDE HAMMER TYPES

SNAP-ON Gear Pullers are offered in seven sizes, with the dwarf, small and medium models available in either standard or slide hammer type or as a combination of both. Medium and intermediate sizes are available in two or three jaw models. Larger model pullers are made in 2-jaw pressure screw type only. The yoke and jaw construction locks the jaws onto the job . . . pulls small gears as easily as big ones

. . . produces safe, uniform power over the entire pulling range . . . gives you slipless, tipless pulling. Yokes have 2 slots in each jaw to provide better gripping power on small jobs. Jaws reverse for either "inside" or "outside" holds and sturdy jaw tips provide ample strength. The centralized, guided shock of the slide hammer provides a powerful, equally distributed pulling force.

SCREW TYPE GEAR PULLERS

DWARF 2-JAW AND 3-JAW PULLERS

MAX:—3" JAW SPREAD—2½" JAW REACH
For ½" diameter bearings use only one jaw locked in inside yoke slot. ⅝"-16 screw has hex head.

- ▲ **A** CG-240 Dwarf 2-Jaw Screw Type Puller.
- ▲ **B** CG-243 Dwarf 3-Jaw Screw Type Puller.

SMALL 2-JAW AND 3-JAW PULLERS

MAX:—4½" JAW SPREAD—3" JAW REACH
4½" maximum spread on outside holds. Jaw reach is 3". Operate through 1½" openings for inside holds. Power capacity 6 tons. ⅝"-18 pressure screw hex head fits ⅝" wrench, pointed screw tip centers on turned shafts.

- ▲ **C** CG-250 Basic Small 2-Jaw Screw Type Puller.
- D** CG-250A Standard Small 2-Jaw Screw Type Puller consisting of CG-250 and CG-1 Pulling Plate Attachment.
- E** CG-253 Small 3-Jaw Screw Type Puller.

MEDIUM 2-JAW AND 3-JAW PULLERS

MAX:—8½" JAW SPREAD—5½" JAW REACH
Operate through 2½" opening for inside pulls. 10 ton power capacity. With exception of yokes and locking plates, all parts of the 2-Jaw and 3-Jaw models are identical. ¾"-16 pressure screw has ¾" hex head and end tip.

MEDIUM 2-JAW PULLERS

- ▲ **F** CG-270 Basic Medium 2-Jaw Screw Type Puller.
- G** CG-270A Standard Medium 2-Jaw Screw Type Puller consisting of CG-270 and CG-1 Pulling Plate Attachment.
- CG-270S Puller.** Same as CG-270 except it has CG-270-3S jaws (page 119) instead of CG-270-3 jaws.

MEDIUM 3-JAW PULLERS

MAX:—8½" JAW SPREAD—5½" JAW REACH

- H** CG-273 Basic Medium 3-Jaw Screw Type Puller.
- J** CG-273A Standard Medium 3-Jaw Screw Type Puller consisting of CG-273 and CG-1 Pulling Plate Attachment.

INTERMEDIATE 2-JAW AND 3-JAW PULLERS

MAX:—10" JAW SPREAD—8½" JAW REACH
When the 2-Jaw model is used for inside holds, jaws may be inserted through 3" hole. The ¾"-16 pressure screw is 11¼" long with a ¾" hex head. The CG-270-8 Slide Screw Bar, 66-2 Slide Hammer and the 10-F Cross Bar may be added to these pullers to convert them into slide-hammer type tools.

INTERMEDIATE 2-JAW PULLER

- K** CG-280 Intermediate 2-Jaw Screw Type Puller.

INTERMEDIATE 3-JAW PULLER

- L** CG-283 Intermediate 3-Jaw Screw Type Puller.

LARGE 2-JAW PULLER

MAX:—12" JAW SPREAD—9½" JAW REACH
On inside pulls the jaws operate through a 3½" opening. Its 20 ton power capacity makes this puller the favorite for those big, tough jobs. The most stubborn gears and pulleys are loosened without damage to any of the units. Pressure screw has 1" hex head for turning with standard wrench. Thread is 1"-14.

- ▲ **M** CG-300 Large 2-Jaw Screw Type Puller.

EXTRA LARGE 2-JAW PULLER

MAX:—16" JAW SPREAD—14¾" JAW REACH
14" maximum jaw spread with over 14" reach on a standard 4" face gear—or 16" jaw capacity on a 3½" face gear. Maximum jaw reach is 14¾". Over 20 tons of pulling power. Industrial maintenance men like these SNAP-ON Pullers because they are easily hooked up to the job and because they work quickly, surely and safely. Pressure screw has 1" hex head so it may be turned with standard wrench. Thread is 1"-14.

- N** CG-305 Extra Large 2-Jaw Screw Type Puller.

SCREW POINT PROTECTORS

These Protectors fit over the tapered point of the puller pressure screw and prevent it from being damaged when puller is used on a shaft without a center hole. Three sizes for different diameter pressure screws are available.

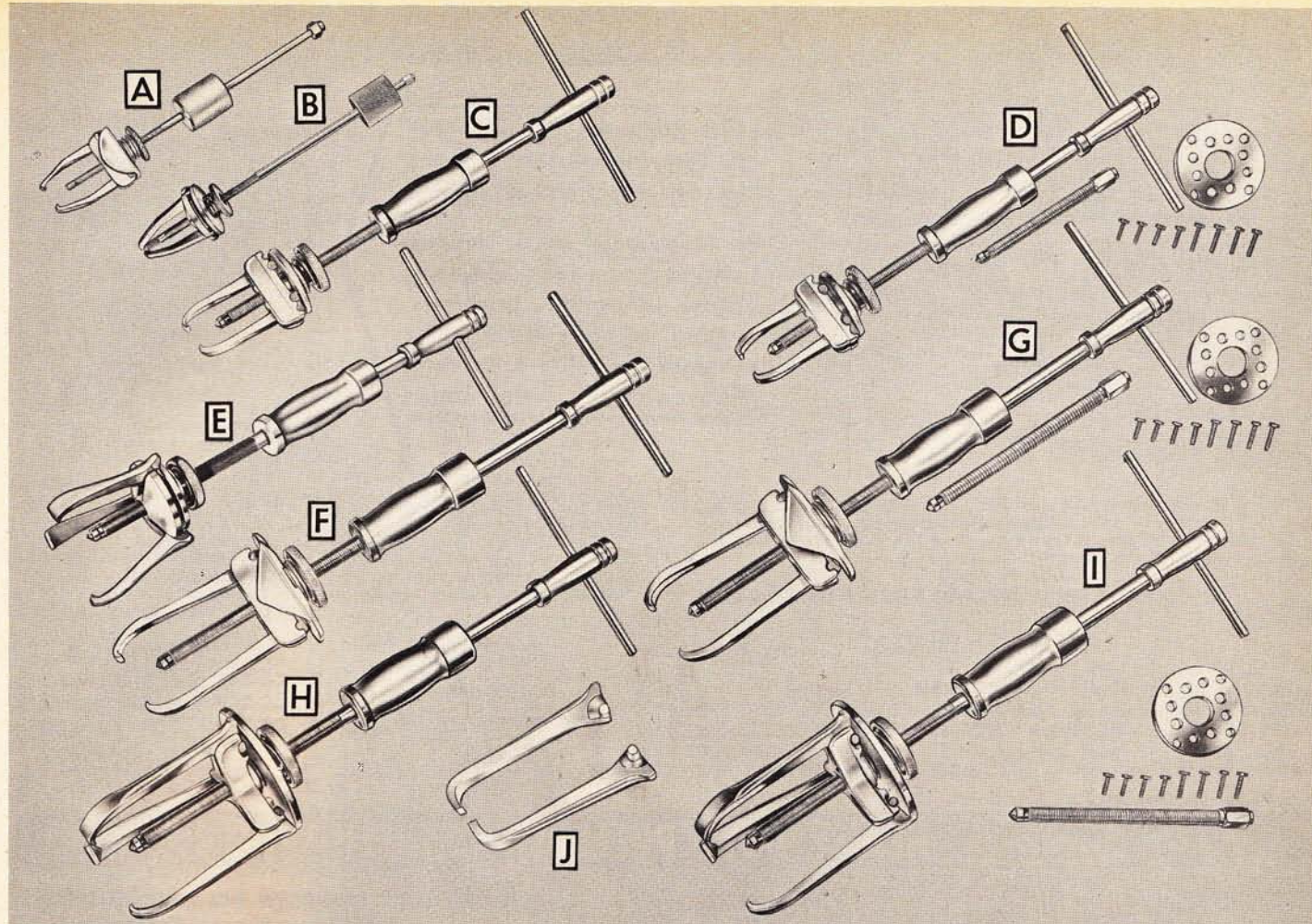
CG-10 Set of 3 Protectors.
CG-6 ⅝" diameter Protector.
CG-7 ¾" diameter Protector.
CG-8 1½" diameter Protector.

LONG JAWS FOR INSIDE PULLING

CG-250-10 Long Jaw. Interchangeable on the CG-250, CG-270 and CG-273 Series Pullers for inside pulling of bearings, bushings, etc. They "lock on" for inside holds up to 8" in diameter and will reach into a ¾" opening to a depth of 3" before binding. Also useful for light work on outside holds. These jaws are 7½" long.

PULLING PLATE ATTACHMENT

CG-1 Pulling Plate Attachment. Complete with four each ¼"-20 and ¼"-28 bolts. Bolts are inserted through plate into tapped gear holes, etc., and puller jaws clamp behind the plate.



SLIDE-HAMMER PULLERS GIVE IMPACT TO LOOSEN TIGHTEST GEARS OR PULLEYS

DWARF 2-JAW and 3-JAW SLIDE-HAMMER PULLERS

MAXIMUM: — 3" JAW SPREAD — 2½" JAW REACH

For ½" diameter bearings use only one jaw locked in inside yoke slot. Works through ⅝" opening for inside pulls. The screw has a ⅜"-16 thread.

(A) CG-240H Dwarf 2-Jaw Slide Hammer Type Puller.

(B) CG-243H Dwarf 3-Jaw Slide-Hammer Type Puller.

SMALL 2-JAW and 3-JAW SLIDE-HAMMER PULLERS

MAXIMUM: — 4½" JAW SPREAD — 3" JAW REACH

Operate through 1½" openings for inside holds. Power capacity 6 tons. The screw has a ⅝"-18 thread.

(C) CG-250H Basic Small 2-Jaw Slide-Hammer Type Puller.

CG-250HL Puller. Similar to CG-250H but with longer CG-250-10 jaws.

(D) CG-250C Combination Small 2-Jaw Slide-Hammer and Screw Type Puller consisting of CG-250H, CG-1 Pulling Plate Attachment and CG-250-1A hex headed pressure screw.

(E) CG-253H Small 3-Jaw Slide-Hammer Type Puller.

MEDIUM 2-JAW and 3-JAW SLIDE-HAMMER PULLERS

MAXIMUM: — 8½" JAW SPREAD — 5½" JAW REACH

Operate through 2½" opening for inside pulls. 10 ton power capacity. With exception of yokes and locking plates, all parts of the 2-Jaw and 3-Jaw model are identical. You can adapt a 2-Jaw model to a 3-Jaw by adding the CG-273-2 yoke, CG-273-5 locking plate and one extra CG-270-3 jaw. The pressure screws have ⅝" thread.

(F) CG-270-H Basic Medium 2-Jaw Slide-Hammer Type Puller.

(G) CG-270C Combination Medium 2-Jaw Slide-Hammer and Screw Type Puller consisting of CG-270H, CG-1 Pulling Plate Attachment and CG-270-1A hex headed pressure screw.

(H) CG-273H Basic Medium 3-Jaw Slide-Hammer Type Puller.

(I) CG-273C Combination Medium 3-Jaw Slide-Hammer Screw Type Puller consisting of CG-273H, CG-1 Pulling Plate Attachment and CG-270-1A hex headed pressure screw.

Puller Series Specifications

CG Model Series	Max. Jaw Cap.	Max. Jaw Reach	Works Thru Minimum Opening of	Approx. Cap. in Tons	Pressure Screw Hex
Dwarf.....CG-240, CG-243	3"	2½"	⅞" diam.	3½	⅜"
Small.....CG-250, CG-253	4½"	3"	1½" diam.	6	⅝"
Medium.....CG-270, CG-273	8½"	5½"	2½" diam.	10	⅝"
Intermediate.....CG-280, CG-283	10"	8¼"	3" diam.	10	¾"
Large.....CG-300	12"	9½"	3½" diam.	20	1"
Extra Large.....CG-305	15"	14½"	5" diam.	20	1"

Stock Numbers of Individual Parts of Pullers

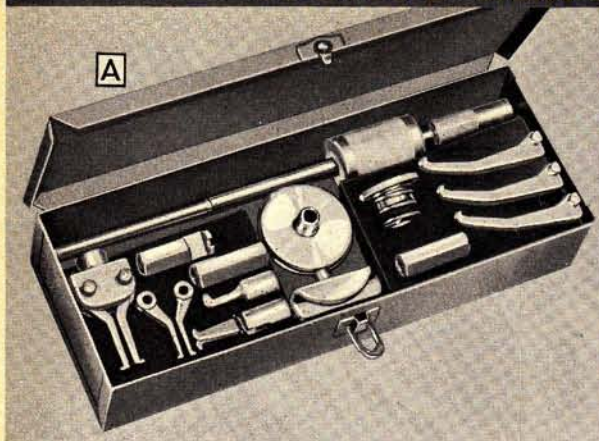
Description	PULLER SERIES					
	Dwarf	Small	Medium	Intermediate	Large	Extra Large
Hexhead Screw.....	CG-240-1	CG-250-1A	CG-270-1A	CG-270-11A	CG-300-1	CG-305-8
Yoke (2 Jaw).....	CG-240-2	CG-250-2	CG-270-2	CG-270-2	CG-300-2	CG-300-2
Yoke (3 Jaw).....	CG-243-2	CG-253-2	CG-273-2	CG-273-2		
Jaw.....	CG-240-3	CG-250-3	CG-270-3	CG-270-10	CG-300-3	CG-305-9
Lock Plate (2 Jaw)...	CG-240-5	CG-250-5	CG-270-5	CG-270-5	CG-300-5	CG-300-5
Lock Plate (3 Jaw)...	CG-243-5	CG-250-5	CG-273-5	CG-273-5		
Spring.....	CG-240-6	CG-250-6	CG-270-6	CG-270-6	CG-300-6	CG-300-6
Adj. Nut.....	CG-240-7	CG-250-7	CG-270-7	CG-270-7	CG-300-7	CG-300-7
Long Screw Shaft...	CG-240-8	CG-250-8A	CG-270-8A			
Slide Hammer.....	CG-240-9	CG-250-9	66-2			
Cross Bar.....		10-F	10-F			
Pulling Plate.....		CG-1	CG-1			

Medium Series Pullers may be converted into the intermediate Series simply by adding two or three CG-270-10 Jaws and the CG-270-11 Hexhead Screw.

SPECIAL JAWS FOR EXTRA GRIPPING POWER

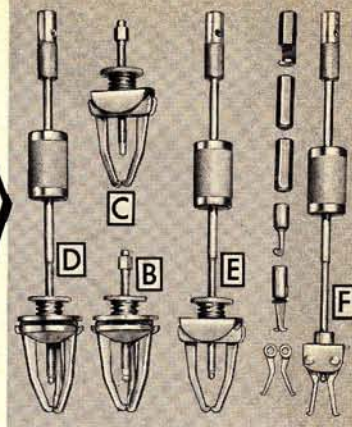
(J) CG-270-3S Special Jaw. Interchangeable on the CG-270, CG-273, CG-270H and CG-273H pullers on this and facing page. Provides greater gripping jaw surface and pulling power for tough jobs. The jaw gives a reach of 5½" and a spread of 8½".

CG-2400-B LIGHT-DUTY UNIVERSAL PULLER SET



LETS YOU ASSEMBLE ANY OF THE FIVE BASIC SMALL PULLERS SHOWN AT RIGHT

Removes small seals, sleeves, bearings, grease retainers, bronze or oilite bushings, bearing races and bushings as small as $\frac{3}{8}$ " I.D., and removes sheet metal dents



This selection of puller parts not only permits you to assemble all of the pullers shown above and listed below but saves you almost fifty percent of the total cost of the five pullers if you bought them separately.

The two sets of smaller jaws have a range for inside pulling

from $\frac{25}{64}$ " to $1\frac{1}{4}$ ". The large jaws have a 3" maximum spread on outside holds and a jaw reach of $2\frac{1}{2}$ ", they work through a $\frac{7}{8}$ " opening for inside pulls. You get the advantages of either a two-jaw or three-jaw pulling grip and the choice of pressure screw or slide hammer operation. It's the efficient answer to a great variety of small pulling jobs.

A The CG-2400-B Set Contains These Units

CG-243 3-Jaw Puller
CG-240-2 2-Way Yoke
CG-240-5 2-Way Lock Plate
CJ-93-1 Slide Screw
CJ-93-2 Slide Hammer

CJ-93-3-1 Jaw Holder
A-78-3 Large Jaw (2)
A-78-6A Jaw Pin (2)
A-78-4 Small Jaw (2)
CJ-93-4 Grease Ret. Ad.

CJ-93-5 Bearing Hook
CJ-93-6 Metal Dent Remover
CJ-93-7 $\frac{5}{16}$ "-24 Stud Adap.
CJ-93-8 $\frac{3}{8}$ "-24 Stud Adap.
KRA-104 Metal Case

Set Makes These Pullers

B CG-243 See page 118
C CG-240 See page 118
D CG-243H ... See page 119
E CG-240H ... See page 119
F CJ-93 See page 116

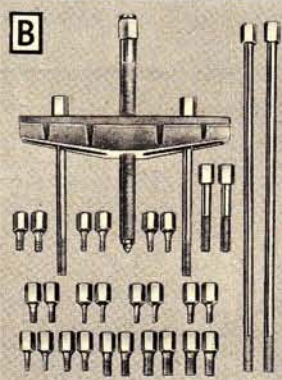
Snap-on HEAVY DUTY PULLERS—MANUAL TYPE



A EXTRA HEAVY DUTY PULLER

Provides You With
25 Tons of Pulling Power

CG-325 Puller. Handles gears and pulleys up to 20" diameter and has a reach of 20". Is adaptable as a three-jaw or two-jaw puller. Yokes and jaws are heat treated malleable iron, comparable in strength to heat treated alloy forgings. The $1\frac{1}{2}$ " diameter screw has a hexagon head which fits any $1\frac{1}{2}$ " wrench. Jaws hook into any of three positions on the arms, once set properly on the job they grip tighter with each turn of the pressure screw. This rugged tool develops a gradual build-up of up to 25 tons of pulling power to pull tough jobs without sledge blows and shocks which might damage machinery.



B UNIVERSAL SLOTTED YOKE PULLER

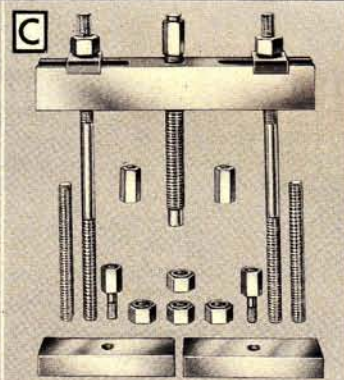
Useful in any shop or industrial plant for pulling tapped bearings, pulleys, gears, etc. The pulling studs have $\frac{5}{8}$ "-18 internal threads in the hex heads and $\frac{5}{8}$ "-18 external threads on the bolt end. To provide extra long reach, two or more studs can be screwed together to provide a strong, rigid pulling unit. . . studs can also be screwed into the CJ-951 and CJ-952 Bearing Separators for added usefulness.

Studs are furnished in 3 lengths and a $\frac{3}{4}$ " wrench fits the hex heads.

Yoke is 12" long and is heavily constructed to provide strength to the arms which are slotted close to the screw hole to give a wide adjustment range.

Threaded adaptors screw onto the pulling studs and fit a wide range of tapped holes. The internally threaded hex heads fit a $\frac{3}{4}$ " wrench.

Pressure Screw is 13 $\frac{3}{4}$ " long . . . it has a $1\frac{1}{2}$ " hex head with removable bar handle and a separate centering adaptor for use on shaft with centering hole.



C HEAVY BAR-TYPE PULLER

CG-350 Heavy Duty Bar Type Puller. Consists of the parts listed below and illustrated at left. Weight 50 lbs.

Provides up to 50 tons of power. The yoke is $2\frac{1}{2}$ " square stock 16" long, grooved to permit pulling objects with openings or tapped holes a minimum of 6" apart, center to center. The side rods are threaded at both ends for greater ease in setting up the puller. Rods can be joined by means of the special connecting nuts to provide longer reach.

To increase the rigidity of the side rods and to make the unit adaptable for pushing or pulling, an extra set of nuts is included which can be threaded on the rods to contact the underside of the yoke. Tightening the top nuts then locks the rods and yoke together.

For pulling large spoke wheels, etc., 2 adaptor blocks 8" x $2\frac{1}{2}$ " x $1\frac{1}{4}$ " are slid over the rods and held in position in back of the wheel by 2 nuts. This puller can also be used in combination with our CJ-951 and CJ-952 bearing separators. Adaptors are included that have $\frac{7}{8}$ "-14 internal threads to fit the side rods and $\frac{5}{8}$ "-18 external threads to fit the tapped holes in these bearing separators. Pressure screw hex head fits a $1\frac{1}{2}$ " wrench.

CG-350-1 Pressure Screw, $1\frac{1}{2}$ "-12 thread

CG-350-2 Yoke

CG-350-3 Long Side Rod (2 required)

CG-350-4 Short Side Rod (2 required)

CG-350-5 Side Rod Conn. Nut (2 required)

CG-350-6 Adaptor Block (2 required)

CG-350-7 $\frac{7}{8}$ " Hex Nut (6 required)

CG-350-8 Clip Washer (2 required)

CG-350-9 Bearing Separator Adaptor (2 req.)

CJ-84C Basic Slotted Yoke Puller. Consists of following parts:

CJ-84-1B Slotted Yoke
CJ-84-4 13" Pressure Screw
CJ-84A-2 10" Stud (2 included)
ME-5A-16 Washer (2 included)
CJ-84-16 Centering Adaptor
CJ-840C Universal Slotted Yoke Puller. Consists of the CJ-84C Set above and all other additional parts listed below.

Additional Parts

CJ-84-3 20" Stud (2 included)
CJ-84-5 5" Stud (2 included)
Adaptors 2 of each included
CJ-84-6 $\frac{5}{16}$ "-24 CJ-84-10 $\frac{3}{4}$ "-16
CJ-84-15 $\frac{5}{16}$ "-18 CJ-84-11 $\frac{1}{2}$ "-13
CJ-84-7 $\frac{3}{8}$ "-24 CJ-84-12 $\frac{3}{8}$ "-11
CJ-84-8 $\frac{1}{4}$ "-20 CJ-84-17 $\frac{5}{8}$ "-18
CJ-84-18 $\frac{1}{4}$ "-14 CJ-84-13 $\frac{3}{4}$ "-16
CJ-84-9 $\frac{1}{2}$ "-20 CJ-84-14 $\frac{3}{4}$ "-10

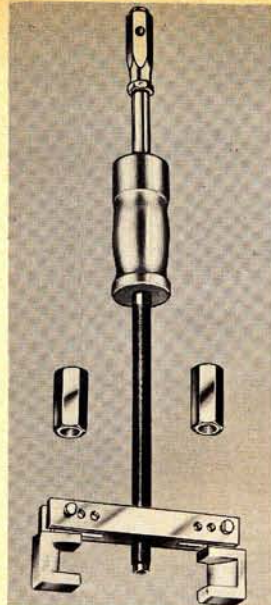
Snap-on AXLE SHAFT PULLERS

GRIPPING-JAW TYPE

This rear axle puller is designed for pulling flange-type axles on all late model Ford, General Motors and other products. It is engineered for fast, efficient service. It does not require bolting to the axle flange, you simply slide the jaws over the flange and you are ready to remove the axle by means of the slide hammer.

Tool consists of a pressure screw, slide hammer, a yoke and a pair of jaws. Owners of one of our slide hammer pullers CJ-66A, CG-270H or CG-273H can use the slide hammer for this operation by merely buying the CJ-85-1 Yoke, two 66-9A Pins and a set of CJ-97-1X jaws.

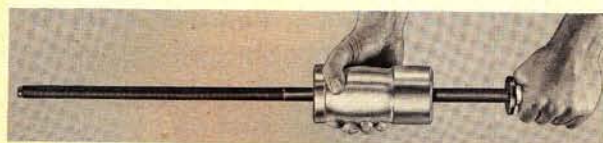
For greatest convenience, get the complete puller and be ready to handle these axle jobs quickly, easily and profitably. Overall length is 24½", weight 10½ lbs.



CJ-97 Complete Axle Shaft Puller

CJ-97-1X Pair of Jaws
CJ-105-4 Slide Hammer Shaft
CJ-97-3 Slide Hammer
CJ-97-4 Chrysler Axle Shaft Adaptor

CJ-97-5 Rambler Axle Shaft Adaptor
CJ-85-1 Yoke. (¾"-16 thread)
CJ-105-11 Jaw Pin (2 required)



HEAVY DUTY SLIDE HAMMER AND SHAFT SET

Provides Extra Power For Tough Jobs

SHAFT LENGTH, 30 inches. HAMMER WEIGHT, 10 lbs.

CJ-109 Slide Hammer and Shaft Set. When you need extra power to pull those tough axle shafts, "frozen" brake drums, tight pulleys and gears, etc., use this slide hammer and shaft with any SNAP-ON puller yoke having a ¾"-16 threaded hole. This 30-inch shaft gives the extra distance needed for a powerful hammer blow. The heavy 10-pound hammer, together with the greater momentum provided by the long shaft gives the heaviest slide hammer blow of all the SNAP-ON pullers. A special guard acts as an anvil to receive the hammer blows and helps protect the user's hand.

Can Be Used With a Variety of SNAP-ON Pullers



Showing Use With Axle Shaft Puller Parts

As shown above, the CJ-109 Hammer and Shaft set is extremely well suited for use with the yoke and jaws of the CJ-97C Axle Shaft Puller (top of page). It is equally well adapted for use with the CJ-100A Brake Drum Puller parts.

Other pullers that can be used with this large slide hammer and shaft include all those on page 123, any puller using yokes CG-270-2 or CG-273-2 (pages 118 and 119), CJ-98A Harmonic Balancer Puller (page 113) CJ-105A Puller Set (page 125) and Special Purpose Puller Heads (page 122). The CG-45 Blind Hole Bearing Puller (page 127) can also be used with this large CJ-109 Hammer and Shaft set when extra pulling power is needed.

The length of our standard slide shafts used in above pullers is 23 inches as against 30 inches for this heavy duty shaft. The standard slide hammer weighs 3¼ lbs. as against 10 lbs. for the heavy duty slide hammer. If you run into tough jobs you need the powerful blow this heavy hammer and extra long slide shaft provide.

BOLT-ON TYPE

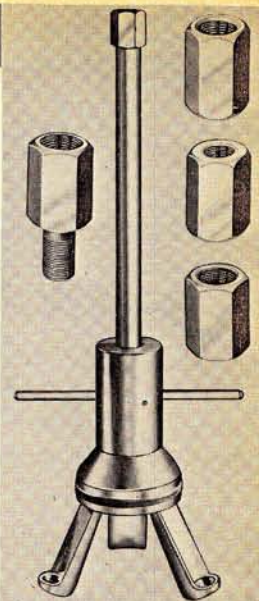
This tool, without the adaptors, will service all Ford and GM cars as well as all cars and light trucks that have flange-type axles. Do the job quickly, easily and safely with plenty of power to break loose the most stubborn axles. Using the four adaptors, almost all makes of cars can be serviced. Tool consists of rugged body assembly with three heavy moveable jaws. The slide hammer has two 4" long handles and weighs 10 lbs. It slides on a 23½" long, 1¼" diameter slide hammer shaft. Shaft has a 1¼"-12 thread at one end and a 1½" hex at the other end.

(A) 4567-SH Axle Shaft Puller (four adaptors listed below not included).

4567-N Slide Hammer Shaft only.

4567-O Slide Hammer only.

4567-Q Base Housing and 3-Jaw Assembly only.



Optional Adaptors

These adaptors thread onto the axle and the opposite end threads onto the 1¼"-12 thread on the puller slide hammer shaft. A few outward blows with the slide hammer frees the axle.

(B) 4567-N-1 Adaptor for Chrysler Products. One end has 1¼"-12 thread to fit puller shaft, other end is ¾"-16 to fit axle.

(C) 4567-N-2 Adaptor for Rambler and Studebaker. One end has 1¼"-12 thread to fit puller shaft, other end is ¾"-14.

(D) 4567-N-3 Adaptor for Willys Jeep. One end has 1¼"-12 thread to fit puller shaft, other end is 1"-14 to fit axle.

(E) 4567-N-4 Adaptor. Has an internal 1¼"-12 thread for attaching to the 4567-N Slide Hammer Shaft (above) and an external 1"-14 thread to fit competitive wheel puller yokes.

3-TON ARBOR PRESS

CG-100 Arbor Press. Takes up little work space, yet delivers tremendous pressure for fast, profitable work. Precision gears and quality construction provide straight, wobble-free action for accurate work. Range of applications includes generator, alternator, starter repairs, bushing removal and replacement, etc. The press frame is constructed of 2" channel iron rails. Bottom rails have holes for bolting to a workbench. Steel work support brackets are secured in place on the side rails by heavy bolts. Gearing multiplies handle pressure to deliver up to three tons of force. Included with the press are these three units:

CG-100-14 Utility Punch

CG-100-15 Work Block

CG-100-16 Adaptor, converts the ½" round drive of pressure shaft to a 5/16" round drive.

Our A-57Q Bushing Driver Set is a good accessory as its adaptors can be used directly on the pressure shaft or on the 5/16" round drive adaptor to provide additional versatility. Our CJ-951 Bearing Separator will fit between the work support brackets to provide a base for such jobs as pulley removal and replacement and drive end bearing removal from the rotor shaft.

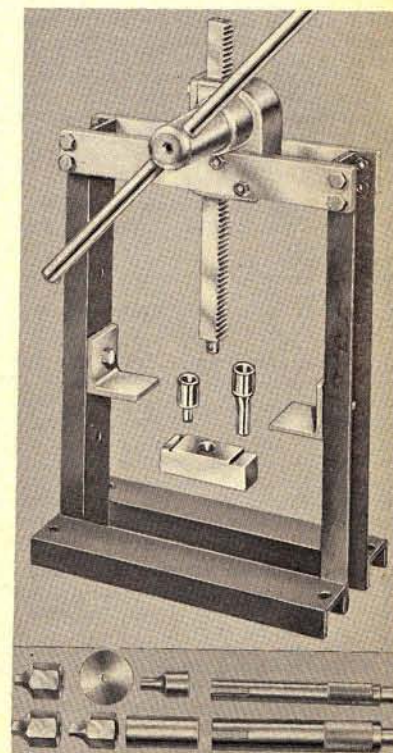
SPECIFICATIONS OF CG-100

18" overall height
11½" overall width
11½" x 6½" base size
123¼" vertical capacity
9" width opening
5" width between work brackets
9" pressure shaft stroke (when utility punch is attached)
17¾" handle length

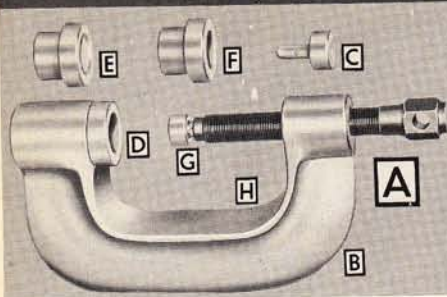
ATTACHMENT SET

CG-101 Attachment Set. For use with above press in handling starter, generator and alternator repairs. (Not included with the Press.) Set includes:

CG-101-1 Rectifier Support
CG-101-2 Housing Support
CG-101-3 Diode Punch
CG-101-4 Bearing Punch
CG-101-5 Bearing Plate
CG-101-6 Flat Driver
CG-101-7 Square Driver (7/32")
CG-101-8 Square Driver (9/32")



SMALL PRESSES AND PULLERS

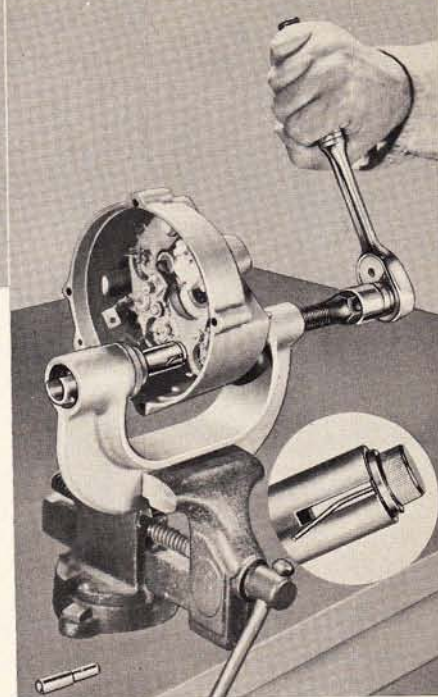


A UNIVERSAL JOINT BEARING TOOL REMOVER AND REPLACER

CJ-91C Universal Joint Tool. Now more versatile than ever ... parts listed below permit servicing universal joints on all cars, including Compacts and foreign cars. Removes and replaces all universal joint needle-type bearings. Eliminates hammer and punch methods which may result in injury due to flying parts. It can be used on the car or at the bench and permits easy and profitable joint lubrication. Removable bushings provides for use on either car or truck joints. The 8 1/2" screw can be turned with any 7/8" wrench or a bar. Position tool around the bearing and tighten screw until lock ring can be removed — reverse tool and press the opposite bearing until its lock ring can be removed — additional pressure will force out

the first bearing. Reverse the tool again to push out the second bearing. Re-assemble bearings in original positions. Lock rings or plates located outside the bearings must be removed before applying tool.

- B CJ-91C-1 Frame, 10" overall length and have a throat length of 6 3/8".
- C CJ-91-2A.....Large Expansion Plug
- D CJ-91-6A.....Small Expansion Plug
- E CJ-91-4.....Small Bearing Driver
- F CJ-91-3.....Bushing Adaptor 1 1/32" I.D.
- G CJ-91-5.....Bushing Adaptor 3/32" I.D.
- H CJ-91-7 Pressure Screw, 3/4"-16 thread. Has 7/8" hex head.



Above: Using the CJ-96-B parts to replace an alternator diode.

J ALTERNATOR DIODE REMOVER AND REPLACER

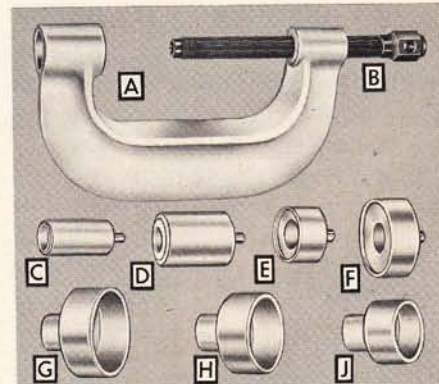
CJ-96B Press Set. Will remove or replace all removable types of alternator diodes easily with gentle, evenly distributed pressure. Use of this tool reduces the possibility of damage to the diode sealant or contacts. Clamp the frame in a vise for convenience. To remove diodes, use the CJ-96-3 adaptor in the pressure screw and the CJ-96-1 support in the frame with the large single slotted end set against the inside of the alternator and over the diode. To replace the diodes, the CJ-96-1 support is placed in reverse position in the frame and the diode is set in the recessed double slotted end of the support. The support fits against the shoulder of the diode and the diode wire or lead may protrude through the slot. The CJ-96-2 replacer is set in the pressure screw and the diode replacement may be made. The CJ-96-2 replacer and frame can be used for pressing end bearings into some alternators.

The CJ-96-4 Adaptor is needed on alternator stator windings that are difficult to remove.

The adaptor is placed in the bearing press, opposite the screw, the CJ-96-1 Diode Support is then inserted inside the adaptor and pressure is applied to remove the stator winding. The adaptor is also used on Chrysler Product Alternators to prevent damage to the diodes during removal.

CJ-96B Alternator Diode Press Set. Includes all parts as listed below.

- | Stock No. | Description |
|------------|---|
| K CJ-96-1 |Diode Support |
| L CJ-96-2A |Diode Replacer |
| M CJ-96-3 |Diode Remover |
| N CJ-96-4 |Diode Support Adaptor |
| O CJ-91C-1 | Frame, 10" overall length and having a throat length of 6 3/8". |
| P CJ-91-7 | Pressure Screw, 3/4"-16 thread. Has 7/8" hex head. |



BALL JOINT PRESS

CJ-76A Ball Joint Press Set. For removing and installing pressed-in type of lower ball joints used on many late model General Motors cars. It works fast and efficiently and eliminates such methods as cutting, burning or punching the old unit out. It also provides the correct way to install a new one, greatly minimizing any chance of damaging the control arm or the new ball joint.

The Drive Adaptors are used to press ball joints out or in. The shank of each has a friction ball which secures it in the pressure screw. Receiving Adaptors needed for leverage during pressing operations have different dimensions to accept various size ball joints.

CJ-76A Set Consists of These Parts

- A CJ-91C-1 Frame. 10" overall length and having a throat length of 6 3/8".
- B CJ-91-7 Pressure Screw. 3/4"-16 thread. Has 7/8" hex head.

Driving Adaptors

- C CJ-76-1 7/8" I.D., 1 1/8" O.D., 2 3/4" long.
- D CJ-76-2 1 3/16" I.D., 1 3/4" O.D., 3" long.
- E CJ-76-3 1 5/8" I.D., 1 3/4" O.D., 1 1/16" long.
- F CJ-76-6A 2 3/16" I.D., 2 1/2" O.D., 1 1/16" long.

Receiving Adaptors

- G CJ-76-4 1 1/16" I.D., 2" O.D., 2 3/16" long.
- H CJ-76-5 2 1/4" I.D., 2 3/16" O.D., 2 1/4" long.
- I CJ-76-7 2 1/2" I.D., 2 7/8" O.D., 2 1/4" long.

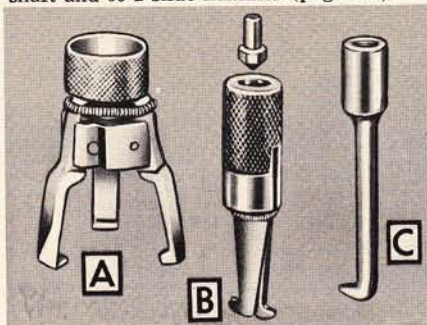
SPECIAL PURPOSE PULLER HEADS

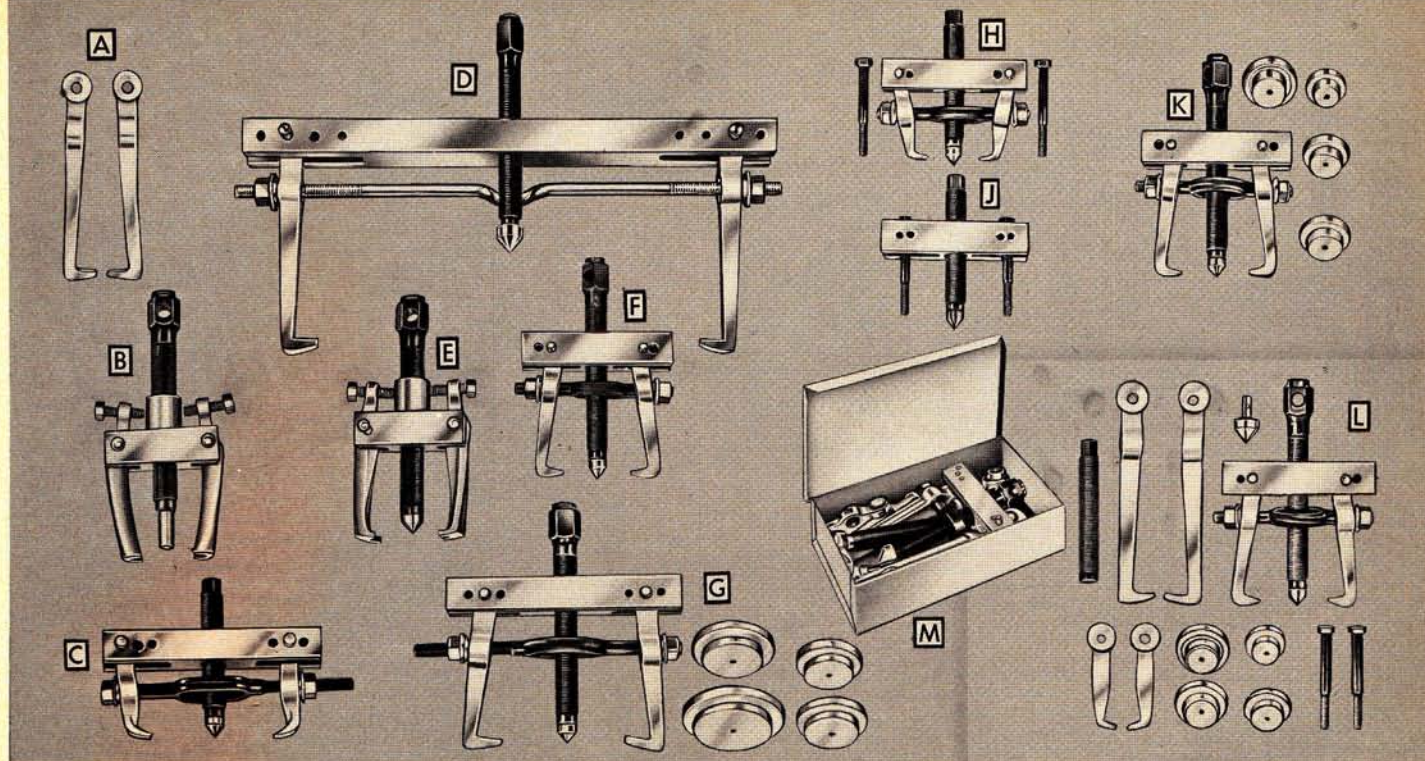
A **CJ-66-22 Axle Puller and Chevy Bearing Race Puller Head.** Use with long screw shaft and slide hammer to pull all sizes of axles or to pull grease retainer and axle bearing in one operation on Chevy cars and trucks. Also pulls many other retainers and bearings that other pullers will not handle. Jaws are used as shown for axle pulling and in reverse position for bearings. Removeable threaded pins hold jaws in the housing.

B **CJ-66-25 Grease Retainer Puller Head.** The thin, tapered jaws are pressed together, inserted through the grease retainer and expanded behind it.

C **CJ-66-19 Bearing Hook Head.** Pulls pilot bearings too large for the A-78 Pilot Bearing Puller as well as grease retainers, bearing races, etc., on cars and trucks. 5 7/8" long, hook width 3/8". (A-78 Puller is shown on page 116.)

These special purpose puller heads have 3/4"-16 threads and can all be used with the CJ-105-4 long screw shaft and CJ-97-3 slide hammer (page 124) or CG-270-8A long screw shaft and 66-2 slide hammer (page 119).





OPTIONAL PULLER JAWS

(A) CJ-282-1 Large Puller Jaw. (2 required.) May be used with the pullers listed on this page.

ALTERNATOR PULLEY PULLER

(B) CJ-79 Alternator Pulley Puller. Designed especially to simplify the job of removing the pulleys from the alternators on Chrysler and Ford products. The pulley is pressed on and it has a puller ring built into it. The special jaws on the CJ-79 Puller are wide and contoured to fit exactly on the pulley ring and exert an even pulling pressure on both sides of the pulley. This puller has side jaw screws to center the puller and lock the jaws on the pulley. A flat centering adaptor protects the end of the shaft.

AIR CONDITIONER PULLEY PULLER

(C) CJ-80 Air Conditioner Pulley Puller. Needed to remove automotive air conditioner drive pulleys. In addition, it can also be used to remove alternator pulleys, generator pulleys, lower crankshaft pulleys, harmonic balancers, power steering units, and fiber timing gears. The yoke offers three jaw positions to accommodate the various diameters encountered. The compactness, wide span, short reach, and versatility of this puller make it an excellent, multi-purpose tool.

BRAKE DRUM PULLER

(D) CJ-100A Brake Drum Puller for removing "frozen" rear brake drums from late model Fords and GM products that have flange type axles. Removal of drum is accomplished by locking the jaws of the CJ-100A on the outer rim of the drum, centering pressure screw on axle and then applying pressure. Clamp bolt locks jaws on drum. Yoke holes permit jaws to cover drums in the 9" to 16" range.

PITMAN ARM PULLER

(E) CJ-78 Pitman Arm Puller. This is a ruggedly built puller designed to handle the toughest Pitman Arm pulling job. It is adjustable to fit the arm on any of today's cars and has special jaws shaped expressly for the job. The 6 1/4" long screw has a removable center point and can be turned with a wrench or a bar. The puller is centered on the job and the jaws locked onto the Pitman arm by means of two jaw screws.

PITMAN ARM PULLER

(F) CJ-82B Pitman Arm Puller. A fast action Pitman Arm Puller that can be used for a wide variety of other jobs. Clamp bolt locks the puller on the Pitman arm leaving hands free for the pulling job.

TRUCK SIDE BEARING PULLER

(G) CJ-85A Carrier Side Bearing Puller for Large Trucks. Pulls bearings without damaging them. Jaws are locked behind the bearing by means of the clamp bolt and pull from the inner race. Four adaptors are furnished to handle all sizes of these bearings.

TIMING GEAR PULLERS

(H) CJ-87 Universal Timing Gear Puller. Has special jaws and jaw clamp to handle the Chevrolet cars and GMC trucks fiber timing gear. Jaws are inserted through the gear holes and pull against the steel insert. Two 3/8"-16 studs handle a majority of tapped timing gears... also fit the taped holes in our CJ-950 Bearing Separator. Screw is only 4 1/4" long, works in close quarters.

(J) CJ-83B Timing Gear Puller. The 4 1/4" long screw on this puller makes it good for close quarter work. One set of 3/8"-16 studs furnished handles the majority of tapped timing gears... also fits tapped holes in our CJ-950 Bearing Separator.

CARRIER SIDE BEARING PULLER

(K) CJ-81D Side Bearing Puller. Removes carrier side bearings without injuring them. The narrow jaws slip into the housing grooves in back of the bearing and let the jaws seat and pull from the inner race. The jaws are locked on the bearing by means of the clamp bolt. Yoke has two sets of holes for positioning of jaws. Four bearing adaptors fit a wide range including Corvair and Falcon.

INTERCHANGEABLE SET MAKES PULLERS F H J K

Saves over 50% of the cost

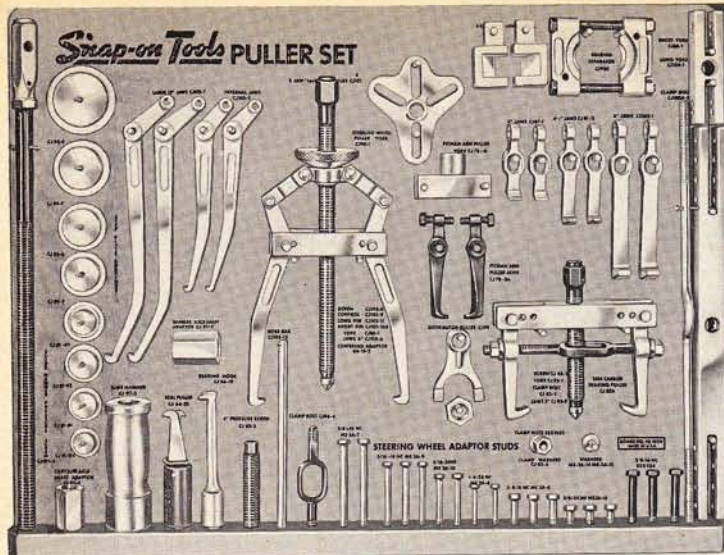
Select the parts and assemble either of the four pullers listed above... at less than half the cost of the four complete tools and, in addition, you get two 6" long jaws. This lets you handle Pitman Arms, Timing Gears, including Chevy cam and GMC truck fiber gears, Carrier Side Bearings etc. Buy the CJ-100-1 Yoke and CJ-100A-2 Clamp Bolt also and you can assemble the CJ-100A Brake Drum Puller.

(L) CJ-282B Interchangeable Puller Set. Tools only.

(M) CJ-282B-B Interchangeable Puller Set. In KRA-40 Metal Box. Box has red enamel finish, 9" long, 5 1/2" wide and 2" deep.

PARTS COMPRISING ABOVE PULLERS

Part No.	Description	B	C	D	E	F	G	H	J	K	L
66-15-3	Center Adaptor.....	1	1	1	1	1	1	1	1	1	1
CJ-78-1B	Yoke.....	1	1	1	1	1	1	1	1	1	1
CJ-78-2A	Jaw (Pitman Arm).....	2	2	2	2	2	2	2	2	2	2
CJ-78-1A	Jaw (Alternator).....	2	2	2	2	2	2	2	2	2	2
CJ-81-2A	Jaw (4 1/2").....	2	2	2	2	2	2	2	2	2	2
CJ-83-2	Screw (6 1/4").....	1	1	1	1	1	1	1	1	1	1
CJ-83-3	Screw (4 1/2").....	1	1	1	1	1	1	1	1	1	1
CJ-84-16	Center Adaptor.....	1	1	1	1	1	1	1	1	1	1
CJ-85-1	Yoke.....	1	1	1	1	1	1	1	1	1	1
CJ-85-2	Jaw (5").....	1	1	1	1	1	1	1	1	1	1
CJ-85-3	Clamp Bolt.....	1	1	1	1	1	1	1	1	1	1
CJ-85-4	Clamp Washer.....	2	2	2	2	2	2	2	2	2	2
CJ-85-1	Yoke.....	1	1	1	1	1	1	1	1	1	1
CJ-85-4	Clamp Bolt.....	1	1	1	1	1	1	1	1	1	1
CJ-87-1	Jaw (3").....	2	2	2	2	2	2	2	2	2	2
CJ-86-3	Adaptor.....	1	1	1	1	1	1	1	1	1	1
Part No.	Description	B	C	D	E	F	G	H	J	K	L
CJ-100-1	Yoke.....	1	1	1	1	1	1	1	1	1	1
CJ-100A-2	Clamp Bolt.....	2	2	2	2	2	2	2	2	2	2
CJ-105-11	Jaw Pin.....	2	2	2	2	2	2	2	2	2	2
CJ-282-1	Long Jaw (6").....	2	2	2	2	2	2	2	2	2	2
ESD-564	Small Stud.....	2	2	2	2	2	2	2	2	2	2
ESD-1063	Clamp Nut.....	2	2	2	2	2	2	2	2	2	2
ME-3A-21	Jaw Screw.....	2	2	2	2	2	2	2	2	2	2
Adaptors											
CJ-81B1	1 1/4"-1.120".....	1	1	1	1	1	1	1	1	1	1
CJ-81B2	1 1/4"-1.245".....	1	1	1	1	1	1	1	1	1	1
CJ-81D1	Corvair Adaptor.....	1	1	1	1	1	1	1	1	1	1
CJ-81D2	Falcon Adaptor.....	1	1	1	1	1	1	1	1	1	1
CJ-85-5	2 1/4"-1.500".....	1	1	1	1	1	1	1	1	1	1
CJ-85-6	2 1/4"-1.650".....	1	1	1	1	1	1	1	1	1	1
CJ-85-7	2 1/4"-1.840".....	1	1	1	1	1	1	1	1	1	1
CJ-85-8	3 1/4"-2 1/4".....	1	1	1	1	1	1	1	1	1	1



CJ-1000C-S Interchangeable Puller Set. Consists of all of the units listed at the right and the VE-102B Display Board. Some of the pulling jobs which can be handled include: timing gears, various pulleys, brake drums, flanged and tapered axle shafts, pitman arms, steering wheels, grease retainers, carrier side bearings, distributors, bearings and bearing races, gears of all types, etc. Both pressure screw and slide hammer power are provided to handle the many stubborn pulling jobs encountered.

Although many of the pulling applications mentioned above apply to the automotive field, there are many industrial uses for this puller set such as small gears, bearings, seals and pulleys, etc.

The convenient tool display board provides wall storage convenience and accessibility. There's a place for each part with white outlines and identification on a bright red background. You know at a glance if a part is missing. The heavy duty board is $\frac{3}{4}$ " thick and measures 24" high, by 32" wide, and has a 2" wide base.

CJ-1000C-S-B Complete Set. All parts listed plus the VE-102B Wall Board and KRA-270A Cabinet.

CJ-1000C Set. All puller parts listed but without Wall Board and Cabinet.

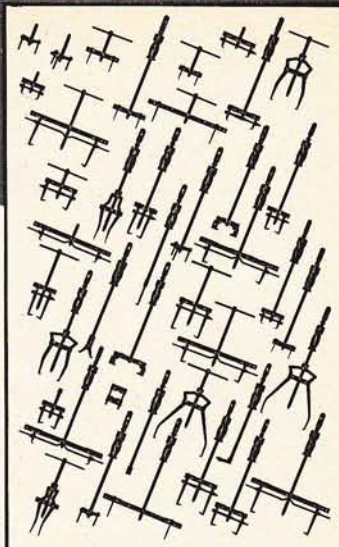
Snap-on CJ-1000 C-S PULLER SET

PROVIDES MAXIMUM VERSATILITY WITH MINIMUM INVESTMENT

THIS SET MAKES ALL THESE PULLERS — AND MORE

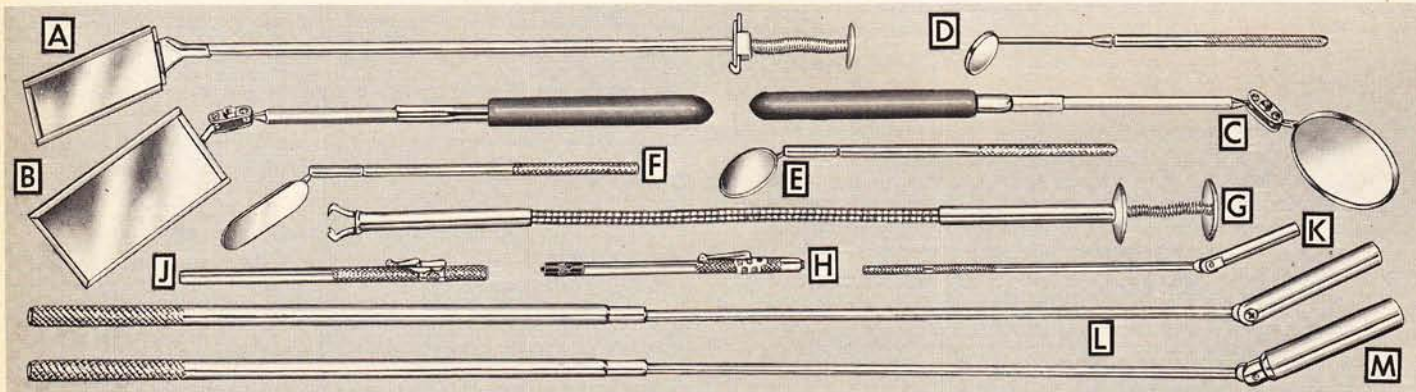
We couldn't spare space to show all the pullers assembled with this set. Over forty are illustrated and there are others.

YOU SAVE A PILE OF MONEY BY BUYING THIS SET OF PARTS AS AGAINST THE COST OF ALL THESE INDIVIDUAL PULLERS



Contents of CJ-1000C Set

Qty.	Stock No.	Description	Qty.	Stock No.	Description
1	66-15-3	Centering Adaptor	1	CJ-97-4	Chrysler Axle Adaptor
1	CJ-68-19	Bearing Hook	1	CJ-97-5	Rambler Axle Adaptor
1	CJ-68-25	Grease Retainer Puller	1	CJ-98B	Universal Puller Set
1	CJ-78-1B	Pitman Arm Puller Yoke	1	CJ-99	Distributor Puller
2	CJ-78-2A	Pitman Arm Puller Jaw	1	CJ-100-1	Puller Yoke
2	CJ-81-2A	Side Bearing Puller Jaw	1	CJ-100A-2	Clamp Bolt
1	CJ-81B-1	$1\frac{1}{2}$ " - 1.120 Adaptor	1	CJ-105-3	Puller Screw
1	CJ-81B-2	$1\frac{1}{8}$ " - 1.245 Adaptor	1	CJ-105-4	Slide Hammer Shaft
1	CJ-81D-1	Corvair Adaptor	2	CJ-105-5	$6\frac{1}{4}$ " Internal Jaw
1	CJ-81D-2	Falcon Adaptor	2	CJ-105-6	$6\frac{1}{4}$ " External Jaw
1	CJ-85A	Side Bearing Puller	2	CJ-105-7	9" Jaw
2	CJ-85-4	Clamp Washer	1	CJ-105A-9	2-Way Control
1	CJ-86-1	Puller Yoke	2	CJ-105-10	Short Pin
1	CJ-86-4	Clamp Bolt	2	CJ-105-11	Long Pin
2	CJ-87-1L	3" Jaw	1	CJ-105-12	Handle Bar
1	CJ-87-1R	Left Flange, Jaw	2	CJ-282-1	6" Jaw
1	CJ-87-1R	Right Flange Jaw	1	CJ-950	Bearing Separator
1	CJ-97-3	Slide Hammer	2	ESD-1053	Clamp Nut
			2	ME-3A-21	Jaw Locking Screw



A HINGED, RECTANGULAR INSPECTION MIRRORS

The mirrors are hinged to the handle and may be tilted to the best viewing position by means of the plunger. A friction catch holds the desired position.

Models with $1\frac{1}{8}$ " x $2\frac{3}{16}$ " mirror.

GA-51A $16\frac{1}{2}$ " long with glass mirror.
GA-51A-1 Extra glass mirror $1\frac{1}{8}$ " x $2\frac{3}{16}$ ".
GA-51AP $16\frac{1}{2}$ " long with plastic mirror.
GA-51A-1P Extra plastic mirror $1\frac{1}{8}$ " x $2\frac{3}{16}$ ".

DELUXE TELESCOPING DOUBLE HINGED INSPECTION MIRRORS

Double ball joints swivel mirrors to 360°. Tempered spring steel links withstand stresses of frequent positioning. Clear-view mirrors have electrolytically plated copper backing. Non-rotating inner hex rods on telescoping handles prevent mirrors from swinging out of desired position. Handles have insulating vinyl grips.

B GA-294 Rectangular Mirror. $2\frac{1}{8}$ " x $3\frac{1}{2}$ ". Overall length closed $11\frac{1}{4}$ ", extended $15\frac{1}{4}$ ".

C GA-295 Round Mirror. $2\frac{1}{4}$ " diameter. Overall length closed 10", extended 14".

Models with 2" x 3" mirror.

GA-53 $16\frac{1}{2}$ " long with glass mirror.
GA-53-1 Extra glass mirror, 2" x 3".
GA-53P $16\frac{1}{2}$ " long with plastic mirror.
GA-53-1P Extra plastic mirror, 2" x 3".

Models with $1\frac{1}{4}$ " x $1\frac{1}{2}$ " mirror.

GA-52A $11\frac{1}{2}$ " long with glass mirror.
GA-52A-1 Extra glass mirror $1\frac{1}{4}$ " x $1\frac{1}{2}$ ".
GA-52AP $11\frac{1}{2}$ " long with plastic mirror.
GA-52A-1P Extra plastic mirror $1\frac{1}{4}$ " x $1\frac{1}{2}$ ".

FLEXIBLE "GRIP-IT" TOOL

G GA-265 Fully-Flexible "Grip-it". $17\frac{1}{2}$ " long, with an 8" flexible section. Bends into a double "S" or a double right angle and still grips any object tightly in the jaws.

The plunger actuates two powerful spring steel jaws the ends of which are notched to give a secure grip.

H PICK-UP TOOL — SCREW STARTER

SSM-5 Pick-up Tool and Screw Starter. Same as the screw starters with standard bit listed on page 76. In addition it has a magnet pick-up at the handle end. Aluminum handle is knurled and has a pocket clip.

D ROUND, FIXED POSITION MIRRORS

GA-145 7" long, $\frac{7}{8}$ " diameter mirror.
GA-145M 7" long, $\frac{7}{8}$ " magnifying mirror.

E ROUND ADJUSTABLE MIRROR

JT-3 8" long, $1\frac{1}{4}$ " diameter mirror with spring loaded ball joint for infinite adjustment on 360°.

F OVAL ADJUSTABLE MIRROR

JT-4 9" long, 1" x 2" oval mirror with spring loaded ball joint for infinite adjustment on 360°. Handle is knurled for sure grip.

MAGNETIC PICK-UP TOOLS

Powerful permanent Alnico magnets are fitted to the ends of brass sleeves. The small outside diameters enable them to slip into small openings with ease, while the hinged heads give around-the-corner accessibility as well. Picks up any small iron or steel object.

J PT-7 Pocket Pick-up. Lifts 16 oz. 6" long.

K PT-10 Small Pick-up. Lifts 16 oz. $8\frac{3}{8}$ " long.

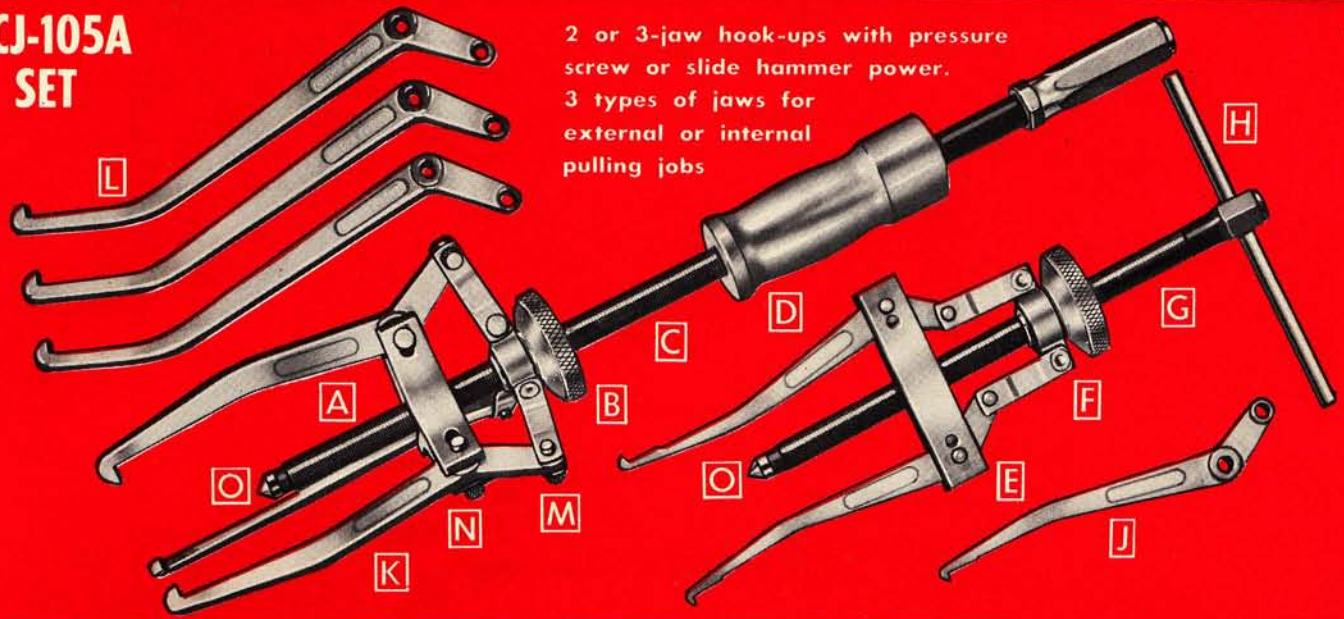
L PT-28 Large Pick-up. Lifts 3½ lbs. Length 16½" and extends to 27".

M PT-30 Powerful Pick-up. Lifts 6½ lbs. Length 17" and extends to 27½".

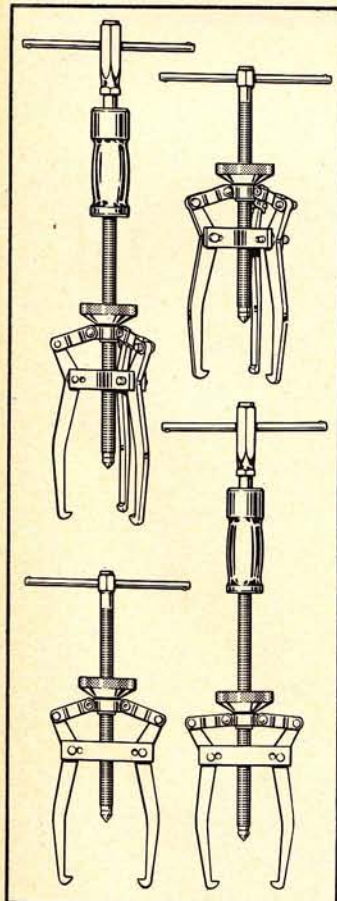
Snap-on INTERCHANGEABLE "LOCK-JAW" PULLER SET

TWELVE PULLERS IN ONE... CONTROLLED "LOCK-JAW" ACTION

CJ-105A SET



2 or 3-jaw hook-ups with pressure screw or slide hammer power.
3 types of jaws for external or internal pulling jobs



ABOVE: The four basic hook-ups using medium size external-type jaws. Similar combinations may be made using the large jaws and the small internal-type jaws. The medium and large jaws may also be used in reverse position for inside application.

This puller is designed and built to give you the most versatile set that you can possibly own and the most pulling power and adaptability for your money. With this complete set you can handle the tough jobs, the tight jobs, the small internal jobs and the widespread or long reach jobs. You are set to handle any type of pulling whether it takes a two-jaw or a three-jaw application and do the pulling either by pressure screw or slide hammer power. Screws have standard N.F. threads... coarser threads would give less power. Wherever there are gears, retainers, bearings, bearing races, bushings, etc., to be pulled this set gives you the puller tool for the job.

Lock-Jaw Controls

Big features of this puller set are the positive jaw locking controls. The jaws can be pinned into either the inner or outer pin location in the yoke and then moved into any gripping position and tightened onto the job by turning the knurled nut on the control assembly. The control arms hold the jaws tightly in place with no possibility of changing position unless the nut is turned. You lock the puller onto the job and leave both hands free for the actual pulling. Note: The control arms take little or no strain from the pulling operation... they merely lock the jaws.

Other Important Features

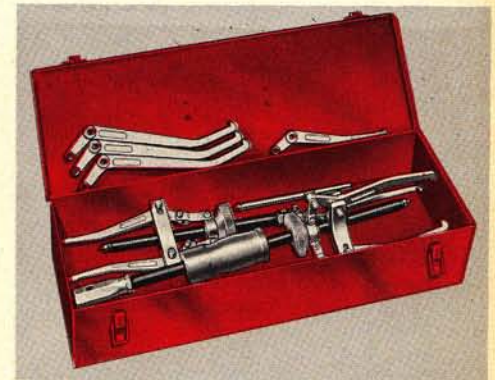
3 Sets of Jaws. 3 of each size to fit any job and each is reversible for inside or outside pulling. Jaws are forged from steel of similar alloy as used for our impact sockets. Jaws, yokes and pressure screws are heat treated to give the maximum strength to threads, jaw tips, etc., that take the brunt of the applied pressure or impact of slide hammer blows. Using the Small Internal Jaws the pullers have an approximate rating of 3 tons. With the medium and large external jaws a rating of approximately 7 tons.

Yokes. Separate yokes for 2 and 3-way hook-ups give you the maximum utility in your set.

Connecting Pins. Two types are used. Short pins for the control arms and long pins for the yoke. All have knurled heads for easy handling and friction balls for easy interchange of parts.

Short Screw. Services jobs in close places where the slide hammer cannot be used. Can be tightened with either the handle bar or a $\frac{3}{8}$ " wrench.

Long Screw and Slide Hammer. Used together to give a sudden powerful blow, guided by the shaft in the direction of the pull. Such a blow combined with center tension distributes the force equally on all sides of the pull and prevents binding of the unit being pulled. It is a most effective method. Screw can be tightened with the handle bar or a 1" wrench.



CJ-105A Combination 2 and 3-Way Puller Set. Contains all parts shown above and listed below.

CJ-105A-B Puller Set. Above set in KRA-112 metal box as shown above. Box is 26 $\frac{1}{2}$ " long, 8" wide and 5 $\frac{1}{2}$ " deep. It has a full length hinge, two clasp fasteners—one may be padlocked, and metal carrying handle. Red enamel finish.

Jaw Reach and Spread—Screw Thread

Small Jaws: Spread: 1 $\frac{1}{4}$ " to 3 $\frac{1}{4}$ " using screw
Spread: $\frac{1}{2}$ " to 3 $\frac{1}{4}$ " using hammer
Reach: 6 $\frac{1}{4}$ " maximum

Medium Jaws: Spread: 2 $\frac{1}{4}$ " to 6". Reach 6 $\frac{1}{4}$ " max.

Large Jaws: Spread: 2 $\frac{1}{4}$ " to 12". Reach 9" max.

Thread Size of screws and Yokes is $\frac{3}{4}$ "-16.

Contents of CJ-105A Puller Set

Stock No.	Description	Qty.
A CJ-105-1	3-Way Yoke	1
B CJ-105A-8	3-Way Jaw Control	1
C CJ-105-4	Long Slide Screw	1
D CJ-97-3	Slide Hammer	1
E CJ-86-1	2-Way Yoke	1
F CJ-105A-9	2-Way Jaw Control	1
G CJ-105-3	Short Pressure Screw	1
H CJ-105-12	Handle Bar	1
J CJ-105-5	Small Internal Jaw	3
K CJ-105-6	Medium External Jaw	3
L CJ-105-7	Large External Jaw	3
M CJ-105-10	Short Jaw-to-Control Pin	5
N CJ-105-11	Long Jaw-to-Yoke Pin	5
O 66-15-3	Centering Adaptor	2



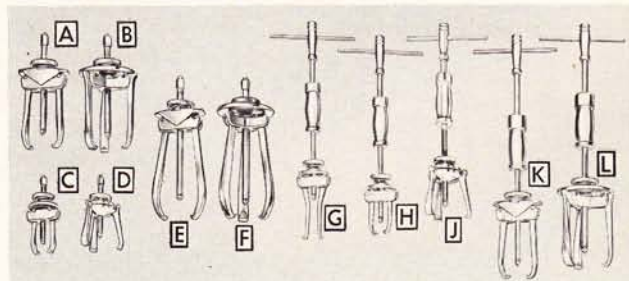
Eleven pullers in this single set? That's right! This one cost-saving space-saving set makes all eleven pullers shown. Separately, these pullers would cost almost three times as much — with no additional work ability. Other SNAP-ON puller parts are interchangeable so you can add various adaptors to the set to handle even more jobs . . . or add hydraulic power with the CG-1224 Power Kit shown below. The set pays for itself in short order in time saved as well as providing working convenience. Spring-loaded control nut locks the jaws in place leaving hands free.

CG-2500-S-B Set. Includes all units listed below, plus the VE-113 Display Board and the KRA-270A Metal Wall Cabinet — as illustrated.

CG-2500-S Set. Above set with Display Board but without the Wall Cabinet.

CG-2500 Set. Tools without Display Board and Wall Cabinet.

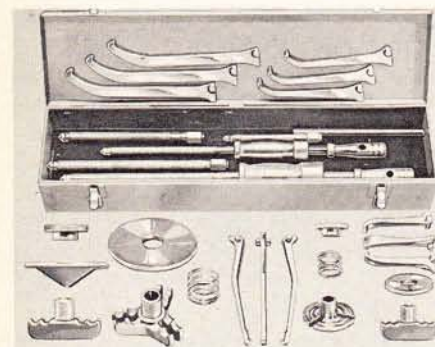
**MAKES ALL ELEVEN PULLERS BELOW
YET SAVES YOU ALMOST TWO-THIRDS OF
THE COST OF INDIVIDUAL PULLERS**



CG-2500-B Set Contains These Units Lets you Assemble Any of These Eleven Pullers

Number	Description	Number	Description
CG-273	3-Jaw Puller	10F	Cross Bar
CG-270-2	2-Way Yoke	CG-253	3-Jaw Puller
CG-270-5	2-Way Lock Plate	CG-250-2	2-Way Yoke
CG-270-11A	Hexhead Screw	CG-250-8A	Slide Screw
CG-270-10	Long Jaw (3)	CG-250-9	Slide Hammer
CG-270-8A	Slide Screw	CG-250-10	Long Thin Jaws (3)
66-2	Slide Hammer	KRA-109	Metal Box

Puller No.	Spread (Outside)	Spread (Inside)	Max. Reach	Capacity	Screw Size
CG-270	0-8½"	2½"-7"	5½"	10 tons	¾"-16
CG-273	0-8½"	2½"-7"	5½"	10 tons	¾"-16
CG-250	0-4½"	1½"-3½"	3"	6 tons	¾"-18
CG-253	0-4½"	1½"-3½"	3"	6 tons	¾"-18
CG-280	0-10"	3"-8"	8"	10 tons	¾"-16
CG-283	0-10"	3"-8"	8"	10 tons	¾"-16
CG-250HL	0-5½"	¾"-8"	6"	3 tons	¾"-18
CG-250H	0-4½"	1½"-3½"	3"	6 tons	¾"-18
CG-253H	0-4½"	1½"-3½"	3"	6 tons	¾"-18
CG-270H	0-8½"	2½"-7"	5½"	10 tons	¾"-16
CG-273H	0-8½"	2½"-7"	5½"	10 tons	¾"-16



CG-2500-B Set. Consists of all puller units listed above, complete with the KRA-109 Metal Box. Box measures 25½" x 6" x 4½" high. Red enamel finish.

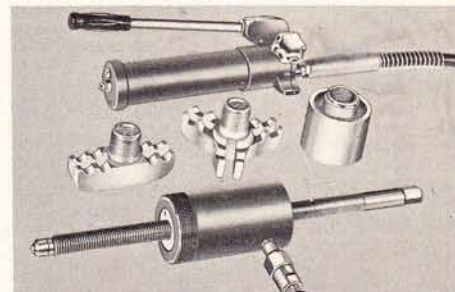
HYDRAULIC TEN TON POWER KIT FOR CG-2500-B SET

CG-1224 Power Kit. Consists of the CG-122 ten-ton ram and pump assembly, CG-270-16 Adaptor, CG-270-15 2-Way Yoke and CG-273-15 3-Way Yoke.

CG-122 Hydraulic Ram and Pump Set consists of CG-120 Ram, BJ-4-2A Pump, BJ-4-3B Hose and BJ-4-4 Coupler Set. The CG-120 Ram is a spring-loaded ram which automatically retracts the workhead when pressure is released. Ram is 4¾" long with a 2½" diameter. It accommodates a 16¼" long pressure screw which has a ⅝" diameter hex, a ¾" diameter shaft, coarse threads for fast positioning, and a free moving center tip to provide shaft end protection.

The BJ-4-2A Pump has an automatic cutout when 10 tons of pressure are applied. This saves the puller from damage caused by overloading. The BJ-4-3B hose is 6 feet long, has a ¼" inside diameter, and has spring guards on both ends. The BJ-4-4 Coupler permits removal of the hose without loss of fluid from the ram.

Note: CG-420-5A Pressure Gauge may be attached to the BJ-4-2A Pump by use of a CG-120-15 Adaptor. Gauge shows on a 3½" dial the amount of pressure applied.



"C"-CLAMP TYPE VALVE SPRING COMPRESSORS



"C" CLAMP VALVE LIFTERS

No matter what engine valves you are servicing these fast, easy to use "C" Clamps will speed your work. It requires only one hand to compress springs and leaves other hand free to remove or replace locks or keepers.

Helps prevent pinched, smashed or bruised fingers. No more calling a second man away from another job to hold keepers in place while spring is being released. Powerful leverage with cam locking handles that are self-locking without extra slides or rings. Screw adjusting post is threaded full length for maximum capacity. The threaded shaft adapts to various valve stem lengths and the shaft foot has spring loaded centering point to grip the valve head tightly. Quality made of tempered spring steel, lifetime plated. Jaws not plated.

(A) CF-11E Universal Type. For $\frac{3}{8}$ " through $2\frac{1}{2}$ " spring diameters. Height $10\frac{1}{2}$ ", width $9\frac{1}{2}$ ". For use on cars, truck, tractor, bus and marine L-Head and Valve in head engines. Three pairs of jaws supplied, CF-21AP, CF-22CP, and CF-23P.

(A) CF-1E Large Capacity Universal Type. For $\frac{3}{8}$ " through $2\frac{1}{2}$ " spring diameter, without removing manifold. Height $10\frac{1}{2}$ ", width 12". Supplied with CF-21AP, CF-22CP, and CF-23P jaws.

(B) CF-17A For High Compression Engines. For 1" to 2" spring diameters on V-8 car and truck engines with overhead valving. Height $9\frac{3}{4}$ ", width 7". Supplied with CF-22CP medium offset, general purpose jaws.

(C) CF-18 Discontinued

(D) CF-19 For Small Air-Cooled Engines. For $\frac{3}{4}$ " to $1\frac{1}{8}$ " spring diameters. Height $5\frac{1}{2}$ ", width $3\frac{3}{8}$ ". Supplied with CF-19-4 and CF-19-3A jaws. Services virtually all small motors, motorcycles, garden tractors, etc.

(E) CF-700 AIR-OPERATED MODEL. For 1" to $2\frac{1}{2}$ " diameter springs. Height 10", width 8". Supplied with CF-21AP, CF-22CP, and CF-23P Jaws. Gives you complete control for all spring work on late model cars, trucks, buses, tractors, marine and industrial type engines.

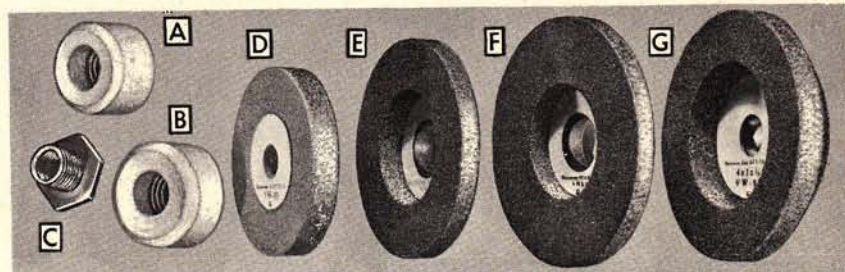
This easily handled, light weight (less than 6 lbs.) unit features a completely parallel lift which positively will not bend the valve stem. It operates on line pressures of 90 to 150 pounds and develops pressures equal to three times the line pressure.

Here is the easiest, fastest method of handling heavy valve spring work with a light, efficient, easily handled lifter controlled by two simple air valves.

EXTRA JAWS FOR ABOVE LIFTERS

Will fit all above models except CF-19.

- (G) CF-21AP Low Offset.** Capacity: $\frac{3}{8}$ " to $1\frac{1}{2}$ ".
- (H) CF-22AP Low Offset.** Capacity: 1" to 2".
- (J) CF-22BP High Offset.** Capacity: 1" to 2".
- (K) CF-22CP Medium Offset.** Capacity: 1" to 2".
- (L) CF-23P Large Straight.** Capacity: $1\frac{1}{2}$ " to $2\frac{1}{2}$ ".



A VALVE SEAT WHEELS for SNAP-ON VG-16A Grinder

These SNAP-ON valve seat wheels are one third thicker than ordinary wheels and give almost double the length of service. Bushing extends part way through and does not interfere with dressing the wheel. All wheels are cut to 45° angle . . . are easily dressed to 30° without waste. All have $\frac{5}{8}$ "-18 threaded bushings.

Wheel Diameter	Wheel Depth	For Hard Steel and Stellite	For Finish Work
$1\frac{1}{4}$ "	1"	SE-405R	SE-405F
$1\frac{3}{8}$ "	1"	SE-445R	SE-445F
$1\frac{1}{2}$ "	1"	SE-485R	SE-485F
$1\frac{5}{8}$ "	1"	SE-525R	SE-525F
$1\frac{3}{4}$ "	1"	SE-565R	SE-565F
$1\frac{7}{8}$ "	1"	SE-605R	SE-605F
2"	1"	SE-645R	SE-645F
$2\frac{1}{8}$ "	1"	SE-685R	SE-685F
$2\frac{1}{4}$ "	$\frac{3}{4}$ "	SE-725R	SE-725F

UNIVERSAL TYPE VALVE SEAT GRINDING WHEELS

Fine grit wheels designed for use on cast iron, steel, or stellite valve seats. Each has an $\frac{1}{16}$ "-16 threaded bushing which fits Keystone, Quickway, Skil, Sioux, Thor, U.S. Electric grinders. Used with our VG-10-5A $\frac{9}{16}$ "-16 Bushing Adaptor they can be used on Black & Decker, K. O. Lee, and Van Dorn valve seat grinders. Depth of each wheel is one inch.

Stock No.	Wheel Diam.	Stock No.	Wheel Diam.
VW-400F	$1\frac{1}{4}$ "	VW-560F	$1\frac{1}{4}$ "
VW-440F	$1\frac{3}{8}$ "	VW-600F	$1\frac{1}{8}$ "
VW-480F	$1\frac{1}{2}$ "	VW-640F	2"
VW-520F	$1\frac{5}{8}$ "	VW-680F	$2\frac{1}{8}$ "

VALVE SEAT WHEELS

(B) Universal type, used for cast iron, steel or stellite seats. Have $\frac{1}{16}$ "-16 threaded bushing, fits Keystone, Quickway, Skil-Saw, Sioux, Thor and U. S. Electric.

Stock No.	Dia.	Depth
#VW-320	1"	$1\frac{1}{4}$ "
#VW-360	$1\frac{1}{8}$ "	$1\frac{1}{4}$ "
VW-400	$1\frac{1}{4}$ "	1"
VW-440	$1\frac{3}{8}$ "	1"
VW-480	$1\frac{1}{2}$ "	1"
VW-520	$1\frac{5}{8}$ "	1"
VW-560	$1\frac{3}{4}$ "	1"
VW-600	$1\frac{7}{8}$ "	1"
VW-640	2"	1"
VW-680	$2\frac{1}{8}$ "	1"
VW-720	$2\frac{1}{4}$ "	$\frac{3}{4}$ "
VW-760	$2\frac{3}{8}$ "	$\frac{3}{4}$ "

Have $9/16$ " threaded bushing.

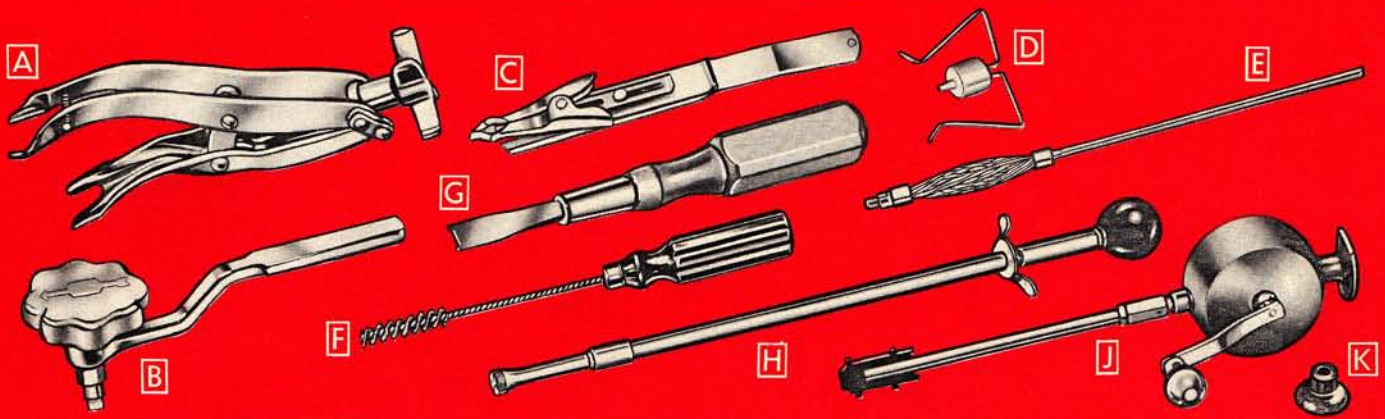
(C) VG-10-5A Bushing Adaptor, threads into above valve seat wheels to provide $\frac{9}{16}$ "-16 threaded opening for use with Black & Decker, K. O. Lee and Van Dorn.

VALVE REFACING WHEELS

Designed to fit popular types of valve refacing machines.

- (D) VW-50 Straight Wheel,** 3" x $\frac{1}{2}$ " x $\frac{1}{2}$ ". Fits Black & Decker Types $\frac{1}{2}$ " A to EF.
- (E) VW-52 Offset Wheel,** $3\frac{1}{2}$ " x $\frac{3}{4}$ " x $\frac{7}{8}$ ". Fits Kwik-Way Refacers.
- (F) VW-53 Offset Wheel,** 4" x $\frac{3}{4}$ " x $\frac{7}{8}$ ". Fits Kwik-Way Refacers.
- (G) VW-54 Offset Wheel,** 4" x 1" x $\frac{5}{8}$ ". Fits Black & Decker Super Service. Van Dorn $\frac{9}{16}$ " x $\frac{5}{8}$ ", Sioux 620 under serial 15,000. Sioux 650 over serial 30,000 and Sioux 660 over serial 10,000.

MISCELLANEOUS VALVE SERVICE TOOLS



A CF-49A Valve Lifter. Short and compact — only 9¼" long, this tool gets into tight spots and works on most "L" head engines having straight stemmed valves. It does jobs that have other lifters licked before they start. Top jaws are adjustable for various spring sizes. Lifting capacity of the tool is 2½". Jaws remain parallel at all times and lift the spring without binding or slipping to a height which allows plenty of room for access to the valve stem keys.

The jaws of this convenient valve lifter lock open at any point leaving your hands free to remove the keys. On engines having valve spring guides, the guides must be turned to clear the jaws of the lifter. Springs up to 300 pounds of coil strength can be lifted with this sturdy tool.

B V-22 Overhead Valve Adjusting Tool. Handles all the adjusting work done by earlier models of this popular tool and also services Ford V-8 and Mercury; Lincoln, Ford "6" and F-7, F-8, and cab-over-engine trucks and Chevrolet "6".

The offset handle provides clearance over the hot manifold and makes tappet adjusting work on these engines fast, safe, and easy. Connect the right size ½" square drive socket to the tool and, with the engine idling, place the socket onto the lock nut. Loosen or tighten the nut by means of the offset handle — push the knob handle down to engage the screw driver blade in the tappet screw slot for adjustment. Tool is 7½" long.

C CF-7B Valve Key Replacer. The narrowest, most compact tool ever perfected for replacing all split type valve keys easily and quickly. It requires a very minimum of work space. The sliding base absolutely prevents the keys from dropping into the motor while being replaced. . . . Easy to load . . . Easy to use — you'll do the job much faster.

D GA-264 Rocker Arm Plug Set. Eliminate oil splash while adjusting valves. These plugs provide much working convenience on cars with hollow, oil-fed pushrods, such as the later model GM and Ford products. Each plug clips onto a rocker arm and the rubber tip stops-up the oil feed hole and prevents oil splash when the engine is turned over. Set includes sixteen stoppers in a plastic box.

E RV-1020 Expansion Valve Guide Cleaner. A spiral wire type tool with expansion range sufficient to cover all sizes of valve guide holes: 5/16", 11/32", 3/8", 7/16", 1/2", 9/16" and 5/8". May also be used to clean and remove dirt or rust and burnish any corroded surfaces of holes in this range. Designed for use with a ¼" drill. 9¾" long.

F Valve Guide Brushes. These are extremely well made brushes of spiral design. Highest quality wire is securely woven into the twisted wire shank. Fluted wood handle provides a firm grip for your hand.

No.	Size
AC-10	5/16"
AC-11	11/32"
AC-12	3/8"
AC-14	7/16"

G GA-85 Tappet Screw Driver, used for overhead valve engines. Wide slotted blade, solidly anchored in large-grip wood handle for positive action. 8" long, blade 2½", wide enough to fit over tappets, will not slip off.

H 5-8690 Hydraulic Tappet Tool. Removes hydraulic tappets when varnish or other deposits prevent removal with a magnet. Pressure on the knob expands the gripping collet at the other end of the tool in the tappet. A pulling, twisting motion removes the tappet easily and quickly without undue force being applied to the tool. Finger grips on the shaft make it easy to keep the pressure applied. Tool is 14¼" long.

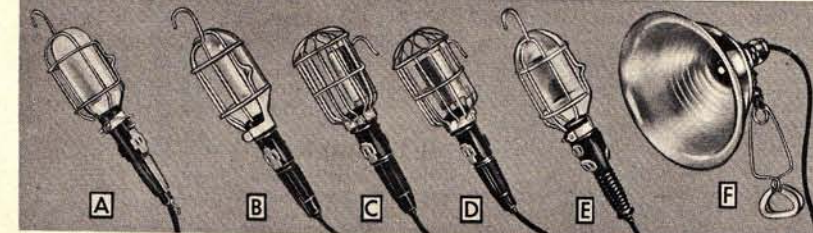
I VG-2A Valve Lapper. Heavy, machined, cast-iron housing for rugged use, all gears heat treated to resist wear, shaft has ball bearing thrust. Blade oscillates rapidly and advances one sixth of a revolution with each turn of the crank. Tool includes one universal driving bit.

ESD-76 Valve Lift Spring. (Not shown.) Use under valve when using valve lappers.

RUBBER SUCTION CUPS

K Hold non-slotted valves properly for lapping operation. High grade rubber shaped to grip tightly. Fit shafts of lapping tools shown here.

VLC-28 7/8" Diameter Cup.
VLC-40 1¼" Diameter Cup.
VLC-56 1¾" Diameter Cup.



VERSATILE TWO-TON LIFTING-PULLING TOOL

Two-ton capacity permits lifting heavy loads such as engine blocks and machinery etc. The tool can be used as wire or fence stretcher, for binding truck loads, for timber and trail work in logging camps, for repairing conveyor chains for stringing and guying work by power line crews, etc.

Features of the tool include: Forged steel slip-hooks — aircraft type heat-treated bolts — high strength steel frame — heat-treated castings — aluminum alloy ratchet wheel — ¾" cable swaged to aircraft specifications — steel parts are cadmium plated. The anchored hook swivels a full 360°. An automatic "let-down" provides speedy release, one notch at a time.

Minimum distance between hooks is 24", maximum lift is 6 feet. Leverage ratio is 36:1.

A GA-197 Two-Ton Lifting-Pulling Tool

B GA-197-1 Optional Safety Hook. Spring loaded catch prevents loads from slipping off the hook.

EXTENSION LIGHTS

A EC-387 Grounded type, UL approved 3 conductor Extension Lights. Built to give rugged service life. The grease resistant, vinyl handle has tool outlets on each side — one is a three conductor, grounded outlet and the other is a two conductor outlet. The handle also has a push-through type switch. This light has a 25 foot, 16 gauge, 3 conductor, rubber covered cord with a three prong grounding type plug. Each lamp guard is grounded for extra safety. Swing-open guard permits easy bulb replacement, and has a hanging hook. These lights are high quality and have full UL approval.

A EC-388 Extension Light. Has the same features as the EC-387 plus the advantage of a 50-foot cord.

The following extension lights carry Underwriter's Approval. Vinyl handles have 2-conductor outlets on both sides. Easy-to-use button switch. Guards have hanging hook.

B EC-338 25 Foot Extension Light. Rubber covered 18 gauge flexible cable. Swing-open guard.

C EC-378 Heavy Duty 25 Foot Extension Light. Neoprene covered 16 gauge

flexible cable. End-opening guard. Armored cable-grip plug has spring action blades.

D EC-379. Same as EC-378 but with 50 foot cord.

E EC-641 25 Foot Extension Light. Push through switch. 18 gauge flexible cable. Swing-open guard with hook.

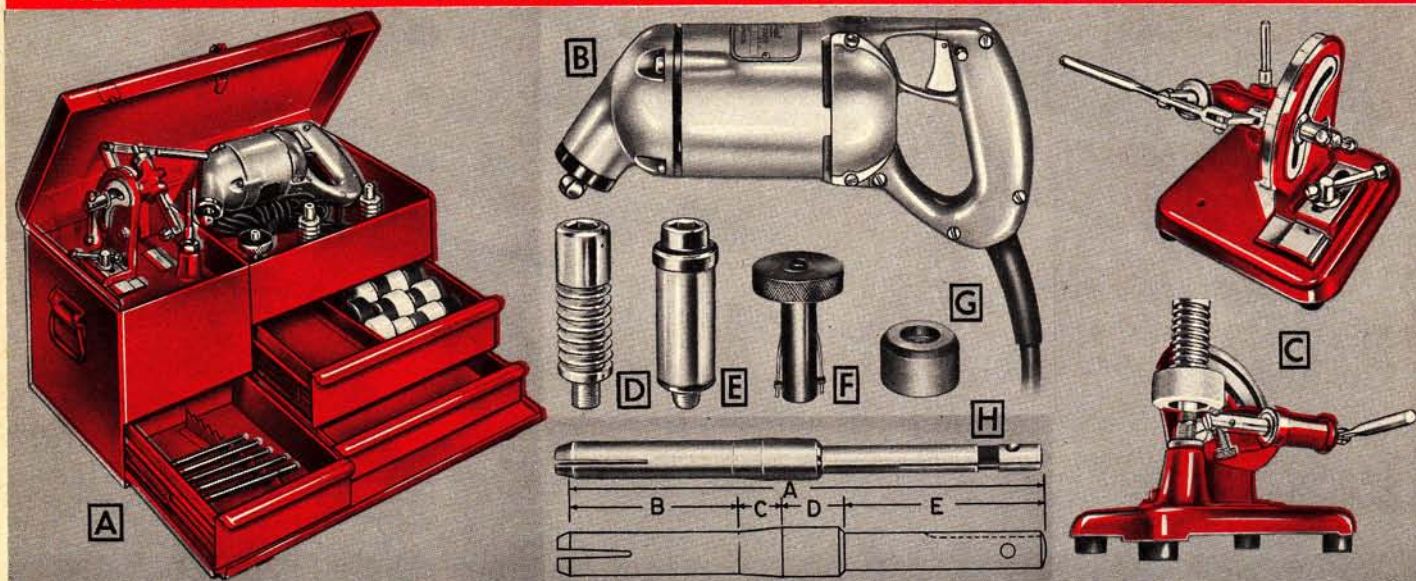
EC-629 50 Foot Extension Cord. 12 gauge .55 O.D. "S" type flexible cable, 3 conductor, with heavy duty armored grip connectors.

F EC-150 Flood Light. 8½" diameter reflector with swivel spring clamps and 20 feet of rubber covered cord.

G EC-16 Magnetic Base Extension Light. For general purpose use, can be attached to virtually any ferrous metal surface in any position — under the hood of a car, beneath a car, under a fender, etc., wherever a directed light source is needed. The 4½" diameter reflector swivels for easy adjustment. Permanent magnet has 45 lb. pull. 20 foot, UL approved cord allows plenty of reach. Metal plate provided for a floor base or hanger. A handy unit for industrial and automotive mechanics.

Blue-Point VALVE SEAT GRINDER SET

RESURFACES HARD OR SOFT VALVE SEATS . . . ACCURATELY—SPEEDILY



Blue-Point VALVE SEAT GRINDER SET

(A) VG-124C-B Valve Grinder Set. Gives you all the units you need to do a perfect job on all cars and light trucks (except some foreign-makes). The special metal case has non-spill drawers with plenty of room for additional wheels and pilots. This rugged box has trunk-type handles, piano-type hinges, tumbler lock, and red enamel finish. Two wheel carriers are included to eliminate time consuming interchange of roughing and finishing stones. Individual units are described on this page. For valve seat reconditioning at its finest here is the set you need.

VG-124C Grinder Set. Above set without the case.

Blue-Point HEAVY DUTY DRIVER

(B) VG-16A Heavy Duty Driver. This driver has a 55° angle drive to provide good operating balance and working clearance from obstructions. The hex ball driving spindle incorporates a built-in vibrating action which lifts the stone from the seat once each revolution. This prevents loading the stone, speeds grinding and reduces stone wear. All grinding is concentric, cutting the entire circumference of the seat and assuring correct alignment. Motor is 115 volt, 5.5 amps, 60 cycle AC/DC. Free running speed is 12,000 R.P.M. 9½ feet of 3-wire cable. Natural aluminum finish. 6¾ lbs. net weight, 11½" long.

VG-16A-220 Driver. Same as above but with 220 volt, 3.5 amp., AC/DC motor.

Note: Grinding wheels for above are listed on page 125.

Blue-Point WHEEL CARRIERS

(D) VG-10-2D Wheel Carrier. Spring mounting permits vertical vibrating action which prevents undue wheel pressure and allows centrifugal force to throw out grindings. Cooling fins dissipate heat. 4¾" long. 5/8"-18 threads.

(E) VG-15 Ball Bearing Wheel Carrier. Inner sleeve engages the pilot groove to prevent turning and the wheel carrying outer sleeve rides and rotates on sealed ball bearings around the inner sleeve. Recommended for heavy duty or very frequent use. 4¾" long. Has 5/8"-18 threads.

VG-124C-B SET CONTAINS PILOTS
VG-16A Driver
VG-25B Dresser
VG-10-2D Carrier
 (2 included)
VX-1 Pilot Wrench
KRA-100 Metal Case

VALVE GRINDING WHEELS		
Rough	Diam.	Fine
SE-445R	13/8"	SE-445F
SE-485R	1½"	SE-485F
SE-525R	1¾"	SE-525F
SE-565R	1¾"	SE-565F
SE-605R	1¾"	SE-605F
SE-645R	2"	SE-645F
SE-685R	2½"	SE-685F

Blue-Point WHEEL DRESSER

(C) VG-25B Diamond Wheel Dresser. Dresses any angle on all types and sizes of valve seat wheels up to 6½" diameter. All moving parts, handle joints, etc., are machined to give smooth, wobble-free operation.

Screw plunger is carried by a sliding housing on a three-hole positioning plate. Adjustment is quickly made to the wheel diameter.

Angle setting index is quickly positioned on the large, easily read gauge. Leather seals keep grit out of plunger guide hole.

Hardened plunger has a machined keyway to hold diamond in true alignment and diamond has over a half inch screw adjustment.

Lock nut locks threaded pilot at the correct wheel height.

Heavy cast iron base has rubber feet and holes for permanent mounting.

VG-25-6 Replacement Diamond Screw

(F) VX-1 Pilot Wrench. A convenient tool for inserting and removing valve guide pilots. Two spring loaded plugs lock into pilot hole. Push button releases the lock.

(G) Small Valve Wheels. For small engines, some Continental Motors, air compressor engines, etc. Universal grit for roughing and finishing. Dress to required angle before using.

UVS-32 Wheel . . . 1" diameter x 1¼" thick

UVS-36 Wheel . . . 1½" diameter x 1¼" thick

NOTE: See Listings of Valve Refacing and Valve Seat Wheels on page 125

(H) Blue-Point PILOTS

These pilots lock securely and center correctly, because each segment acts independently, compensating for wear in its own portion of the guide hole—accommodates guides worn up to .008". Clean valve guide hole before inserting.

Stock No.	Guide Size	Dimensions in Inches				
		A	B	C	D	E
VX-8	¼"	5 11/32	1 3/32	7/8	—	3 3/8
VX-8S	¼"	4 21/32	2 5/32	7/8	—	3
VX-9	9/32"	5 11/32	1 3/32	7/8	—	3
VX-9S	9/32"	4 21/32	2 5/32	7/8	—	3
VX-10	5/16"	5 1/4	1 3/4	3/4	—	2 3/4
VX-10L	5/16"	6 1/4	1 3/4	3/4	1/2	3 1/4
VX-11	11/32"	5 1/4	1 3/4	3/4	—	2 3/4
VX-11L	11/32"	6 1/4	1 3/4	3/4	1/2	3 1/4
VX-12	3/8"	5 3/4	2	3/4	—	3
VX-12L	3/8"	7 1/4	2 1/4	3/4	1	3 3/4
VX-397	.397"	5 5/8	2	5/8	—	3 1/8
VX-13	13/32"	6	2 1/4	3/4	—	3
VX-13L	13/32"	8 1/4	2 1/4	3/8	1	3 3/4
VX-14	7/16"	6 1/4	2 1/2	3/4	—	3
VX-14L	7/16"	8 1/2	2 1/2	1 1/16	1 5/16	3 3/4
VX-16	1/2"	6 1/4	2 1/2	3/4	—	3
VX-16L	1/2"	8 1/8	2 1/2	1 5/16	1	3 5/16
*VX-820	.820"	4 3/4	3/4	1/2	—	3 1/2

*VX-820 fits English Ford Perfect model.

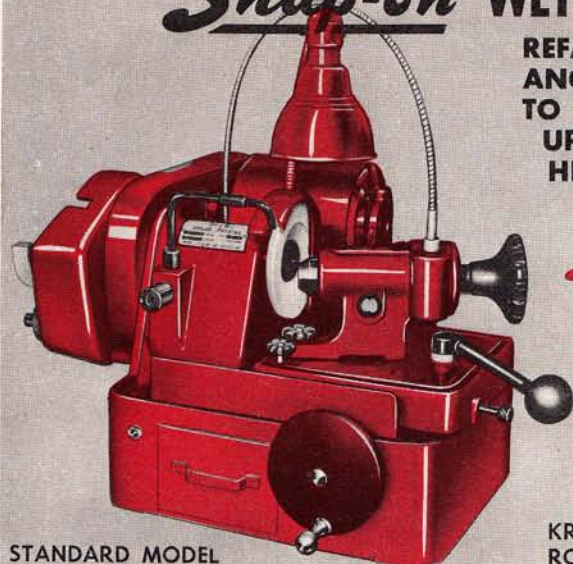
(H) METRIC VALVE GUIDE PILOTS

Needed for use on the more popular makes of foreign cars. These pilots lock securely and center correctly—each segment acts independently, compensating for wear in its own portion of the guide hole.

Stock No.	Guide Size in mm.	Dimensions in Inches				
		A	B	C	D	E
VX-236	6	4 1/32	2 5/32	7/8	—	2 3/8
VX-255	6 1/2	4 9/16	1 5/16	7/8	—	2 3/8
VX-275	7	4 9/16	1 5/16	7/8	—	2 3/8
VX-295	7 1/2	5 5/32	1 25/32	3/4	—	2 3/4
VX-315	8	5 5/32	1 25/32	3/4	—	2 3/4
VX-334	8 1/2	5 5/32	1 25/32	3/4	—	2 3/4
VX-354	9	5 5/32	1 25/32	3/4	—	2 3/4
VX-374	9 1/2	5 5/4	1 25/32	3/4	—	3
VX-393	10	5 5/4	1 25/32	3/4	—	3

Snap-on® WET VALVE REFACERS

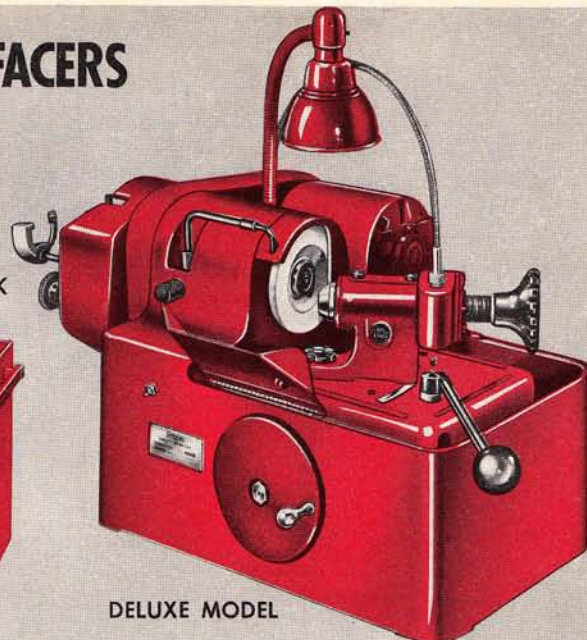
REFACE ANY VALVE
ANGLE FROM ZERO
TO 90 DEGREES...
UP TO 4 INCHES
HEAD DIAMETER



STANDARD MODEL



KRA-450B
ROLL-CAB



DELUXE MODEL

RECONDITIONS VALVES, VALVE LIFTERS AND ROCKER ARMS FOR CARS, TRUCKS, TRACTORS AND AIRCRAFT, MARINE AND OTHER ENGINES

DELUXE AND STANDARD MODELS AVAILABLE

VR-300 Deluxe Series Refacers. Important features are designed into these machines to make them easier to use and service and to keep them efficient and accurate over a longer time period. The base is larger and heavier than the standard models and all working parts such as worktable ways, wheel spindle and feed screw are pre-loaded and never require adjustment for wear. Coolant tank is drawer type for easy removal, worktable and ways are heavier construction and sit within the housing wall to prevent loss of coolant. Micrometer Butt Grinder is included as standard equipment.

VR-200 Standard Series Refacers. Fine machines with many features identical to the Deluxe models. Work tables have lathe-type ways and are preloaded for smooth self adjusting action. Micrometer Butt Grinder is optional equipment. A "V" rest for butt grinding is provided on machines without Micrometer Butt Grinder.

Features Common To Deluxe and Standard Models

- Reface any valve angle 0° to 90° with quickset positive stops for 14, 15, 19, 20, 29, 30, 44, 45 and 90°.
- Heavy, rugged, reinforced cast iron base to minimize vibration.
- Right-hand table-traverse arm is adjustable to any position.
- Double-grip, true-center collet handles valve stems $\frac{3}{32}$ " to $\frac{9}{16}$ " diameter.
- Flexible drive shaft assures constant speed ratio between wheel and valve.
- Baffled coolant tank delivers clean fluid to large capacity vane-type pump. Tank is removable drawer type.
- Tapered rocker arm attachment bushings are included to fit all sizes of rocker arms.
- Oil and grease fittings are out in the open.
- Quick-set valve stop requires only one setting to complete all valves in a series.
- Adjustable stop protects valve stem and spindle from contact against the grinding wheel.

STANDARD EQUIPMENT

- Double end collet $\frac{3}{32}$ " to $\frac{9}{16}$ " valve stem diameter
- Diamond Stone Dresser
- Rocker Arm Attachment
- Micrometer Butt Grinder with Valve Tappet holder, valve depth gauge and 46 Grit wheel (on VR-300A and VR-200BM Series)
- "V" Rest for Butt Grinding (on VR-200B Series only)
- Pint can of Soluble Oil
- Complete Lamp Assembly
- 80 Grit Refacing Wheel

EXTRA EQUIPMENT

- VRC-1 Vinylite Cover for Refacers
- VR-2W-36 Collet $\frac{3}{16}$ " to $\frac{9}{16}$ " stem capacity
- VR-2W33 Collet $\frac{3}{32}$ " to $\frac{9}{16}$ " stem capacity
- VR-2W34 Collet $\frac{1}{4}$ " to $\frac{3}{8}$ " stem capacity
- VR-2W35 Collet $\frac{1}{2}$ " to $\frac{1}{16}$ " stem capacity
- VR-2W37 Collet $\frac{3}{32}$ " to $\frac{1}{32}$ " for Falcon, Comet, Corvair and Olds F-85
- VR-2M89 46 Grit Butt Grinding Wheel
- VR-2M110A Pint can of Soluble Oil
- VW-60 60 Grit Refacing Wheel
- VW-80 80 Grit Refacing Wheel
- VW-80S 80 Grit Refacing Wheel for Stellite valves

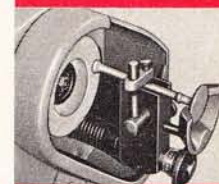
CABINET AND WORK TOP

KRA-450A Roll Cab. We recommend the use of this mobile roll cab with the valve refacers shown above. It is rigidly built of heavy gauge steel, reinforced at top, bottom and corners, closely spot welded, finished in baked-on red enamel, and with stainless steel trim. Four swivel casters (two with foot brakes) provide easy rolling. Both drawers are $14\frac{3}{4}$ " x $17\frac{1}{8}$ " x $3\frac{3}{4}$ " and ride on heavy duty runners. Open compartment is $30\frac{3}{4}$ " x $27\frac{1}{2}$ " x $17\frac{1}{2}$ ". Overall dimensions are 32" wide, 36" high, 19 $\frac{1}{8}$ " front to back. One tumbler lock secures drawers and sliding doors.

KRA-16 Valve Rack. Hooks over raised lip of cab top and holds sixteen valves.



Rocker Arm
Attachment



Micrometer,
Butt Grinder



Diamond
Wheel Dresser



Removable
Coolant Tank

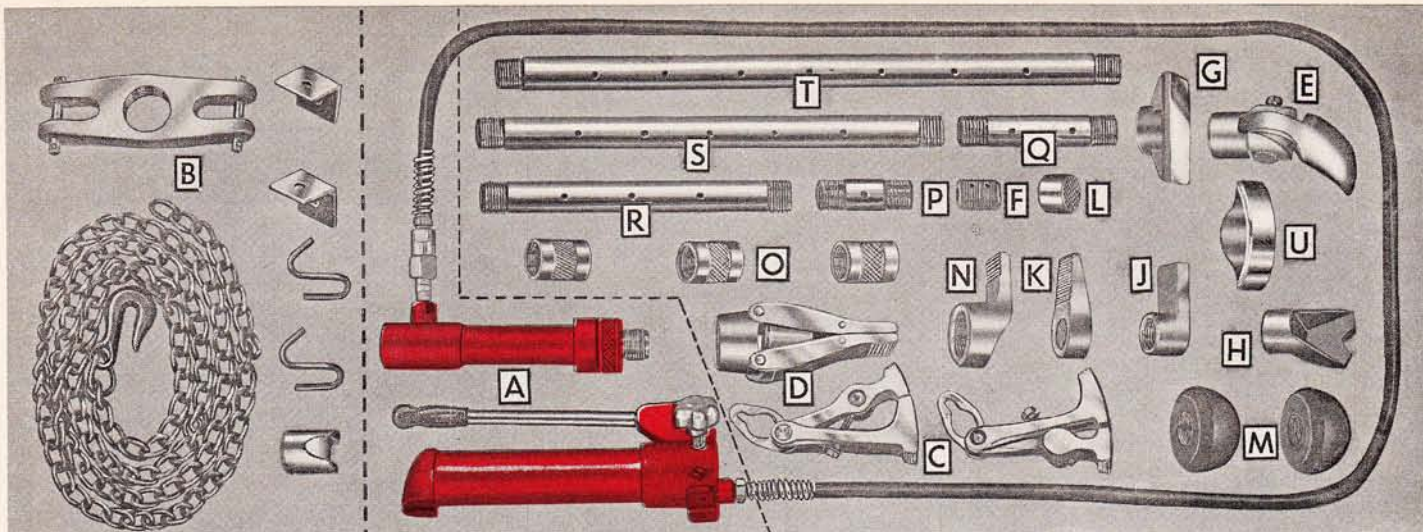


Positive Stop
Angle Settings

MODELS AVAILABLE — ORDER BY STOCK NUMBER SHOWN BELOW

MODELS AVAILABLE	Motor $\frac{1}{2}$ H.P., 115 V 1 Ph. 60 Cy. AC	Motor $\frac{1}{2}$ H.P., 230 V 1 Ph. 60 Cy. AC	Motor $\frac{1}{2}$ H.P., 115 V 1 Ph. 50 Cy. AC	Motor $\frac{1}{2}$ H.P., 230 V 1 Ph. 50 Cy. AC
DELUXE SERIES — With Standard Equipment	VR-300A	VR-301A	VR-304A	VR-305A
STANDARD SERIES — With Standard Equipment	1/3 H.P., 115 V 1 Ph. 60 Cy. AC	1/3 H.P., 230 V 1 Ph. 60 Cy. AC	1/3 H.P., 115 V 1 Ph. 50 Cy. AC	1/3 H.P., 230 V 1 Ph. 50 Cy. AC
Without Micrometer Butt Grinding Attachment	VR-200B	VR-201B	VR-204B	VR-205B
With Micrometer Butt Grinding Attachment	VR-200BM	VR-201BM	VR-204BM	VR-205BM

Models with special voltage motors are available on special order. Prices upon request.



Snap-on FOUR TON BODY JACK

Snap-on

4-TON BODY JACK DOES AMAZING NUMBER OF JOBS

You can do every type of job with this remarkable 4-Ton Body Jack. You push with the pads and the toes—you pull with the Pull Jack and the fender clamps—you spread with the duck-bill spreader. The Ram is short and slender and can be used in very close working quarters.

The 6 foot rubber hose allows placement of the Ram in the best working position and safe pump operation for the user. Lets you work where you can best observe results.

Everything is here that you need, all attachments, pads, tubes, toes, spreaders, chain, etc.—everything—and all are made of high quality materials to assure long rugged life. You start making money immediately when you put this SNAP-ON 4-Ton Body Jack to work for you.

STAND KEEPS ALL JACK PARTS HANDY!

This handsome, sturdy Storage Stand eliminates the chore of groping in a tool box for body jack parts and fittings. The smooth-rolling, large casters (not included with Stand, must be ordered separately if desired) make your Body Jack Set much more mobile and easy to transport from job to job, even over rough, uneven floors. Stand is made of wood, built to withstand hard usage. Has various hooks and platforms to hold all parts of the BJ-4 Set. Parts are easily and quickly removed, missing parts are spotted immediately.

BJ-4-SA Complete 4-Ton Jack Set consisting of all 35 parts listed below, on ASP-4A Storage Stand—but without casters.

JC-12-1 Set of four casters for ASP-4A Storage Stand—must be ordered separately if desired.

BJ-4 4-Ton Body Jack Set consisting of 35 parts only, without Storage Stand.

DESCRIPTION OF INDIVIDUAL BODY JACK PARTS

(A) BJ-4-2X Ram, Pump and Hose Assembly. Consisting of the following four units:

BJ-4-1 Ram. Overall length is 8 $\frac{1}{2}$ " and it has a 4" maximum stroke. Free flowing open channels permit rapid flow of oil and smooth, powerful operation.

BJ-4-2A Pump. An overload safety device in mechanism protects parts and equipment while building up a 4-ton pressure on the work.

BJ-4-3B Hose. $\frac{1}{4}$ " I.D. special oil resistant rubber with imbedded steel mesh reinforcement.

BJ-4-4 Hose Connector. Permits removal of tube without loss of fluid from Ram.

(B) BJ-4-5 Pull Jack. Consisting of the following nine units:

BJ-4-5-1 Puller Cap

BJ-4-5-2 Yoke

BJ-4-5-3 Chain

BJ-4-5-4 S-Hook (2 required).

BJ-4-5-5 Angle Iron (2 required).

BJ-4-5-6 Yoke Pin (2 required).

(C) BJ-4-6 Fender Clamp, has milled jaws to grip onto metal and fender bead. Has flexible linkage (2 required).

(D) BJ-4-7 Spreader, screws right onto ram. 3" spread. Gets into deep sections, replaces prying and hammering.

(E) BJ-4-8 Adjustable Body Spoon is quickly attached, blade may be adjusted to many working positions as work progresses.

(F) BJ-4-9 Internal Connector for attaching pads to base of Ram.

(G) BJ-4-10 Base, has flat pressure surface.

(H) BJ-4-11 "V" Base, permits pressing against protruding bolts and similar objects.

(J) BJ-4-12 Flat Spreader Toe, to work in recesses.

(K) BJ-4-13 Tapered Spreader Toe. Has a serrated face. Grips against the surface of the work to reduce possibility of slipping.

(L) BJ-4-14 Pad with serrated face to prevent slipping, use at end of extension tubes.

(M) BJ-4-15 Rubber Pad avoid damage to metal parts, protect finish (2 required).

(N) BJ-4-16 Flat Spreader Toe, with serrated face.

(O) BJ-4-17 Tube Coupling (3 are required).

Extension Tubes. These tubes are made of seamless steel tubing with free turning threads at both ends. Have special safety step at end of thread to prevent burring.

(P) BJ-4-18 Extension Tube, 3" long.

(Q) BJ-4-19 Extension Tube, 5" long.

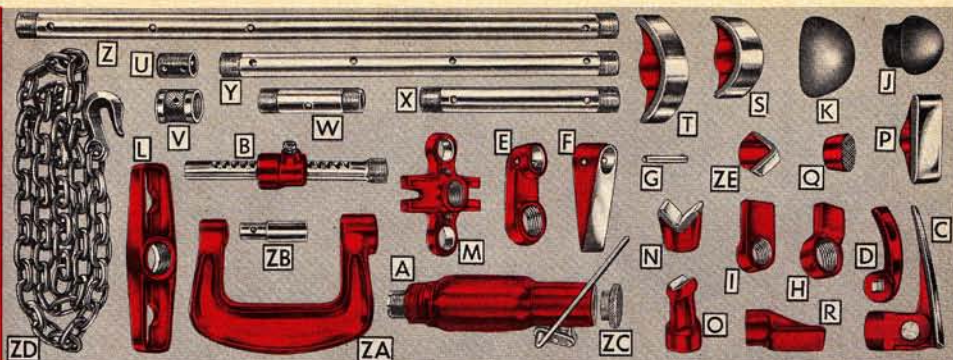
(R) BJ-4-20 Extension Tube, 10" long.

(S) BJ-4-21 Extension Tube, 15" long.

(T) BJ-4-22 Extension Tube, 20" long.

(U) BJ-4-23 Ram Base or pad with a curved 4" radius. Very useful in many places.

BJ-10 10-TON "HYDRA-PAK" SPEEDS UP BODY AND FRAME REPAIR WORK



YOU REGULATE THE PRESSURE EXACTLY BECAUSE YOU SEE THE WORK AS YOU ARE DOING IT

BJ-10 Hydra-Pak Set. Permits you to apply hydraulic power speedily and accurately — controlled to a fraction of an inch. Using "Hydra-Pak" is as simple as using a hand jack — the hydro-unit is right in front of you, on the tool itself where you can regulate power as you watch the job . . . where one man can handle the tool and job all by himself and do better, faster work because he can see what he does as he does it. "Hydra-Pak" has no hose for transmission of fluid, no motors, no remote power connections.

"Hydra-Pak" gives you precision hand-control of 10 tons of power, applied through various combinations of specialized attachments to push, pull, bend, spread, press, lift and clamp . . . controlled power for every operation necessary in body rebuilding work. Cutting power is like shutting a valve . . . the "push" stops instantly, no easing off, no over riding. "Hydra-Pak" also retracts automatically . . . saves time on each set-up.

(A) "HYDRA-RAM"

BJ-10-1E "Hydra-Ram". This self-contained hydraulic power unit develops ten tons of pressure and operates at full efficiency regardless of the position in which it is used. Use it on any job in whatever is the most useful working hook-up and placement and know that it will deliver its full power under complete control at all times. The pump handle attaches in 12 positions for convenient use.

The plunger moves straight out for a full 6" travel to apply pressure without twisting the contact pad out of position. It stops and holds securely at any point on the travel range but can be retracted instantly by turning the release valve.

(B) "KWIXTENSION"

BJ-10-2 "Kwixtension". This unit provides a lightning-fast extension of tubes when making a set-up on the job. The "Kwixtension" provides an additional eight inches of tube length with fourteen stop positions before a change-over of extension tubes is necessary. You simply slide it out to the best stop position and then operate the "Hydra-Ram" Power Unit. To retract the unit, just lift the knurled knob and slide the extension back through the housing.

(C) ADJUSTABLE SPOON

BJ-10-3 Adjustable Spoon. The spoon blades are quickly attached to the holder in any one of twelve working positions. Adjustments in position can be made without removing the set-up from the job. This is a great time saver as the blade position can be gradually adjusted as the job progresses. Slips into very restricted working spots to push out panels, etc.

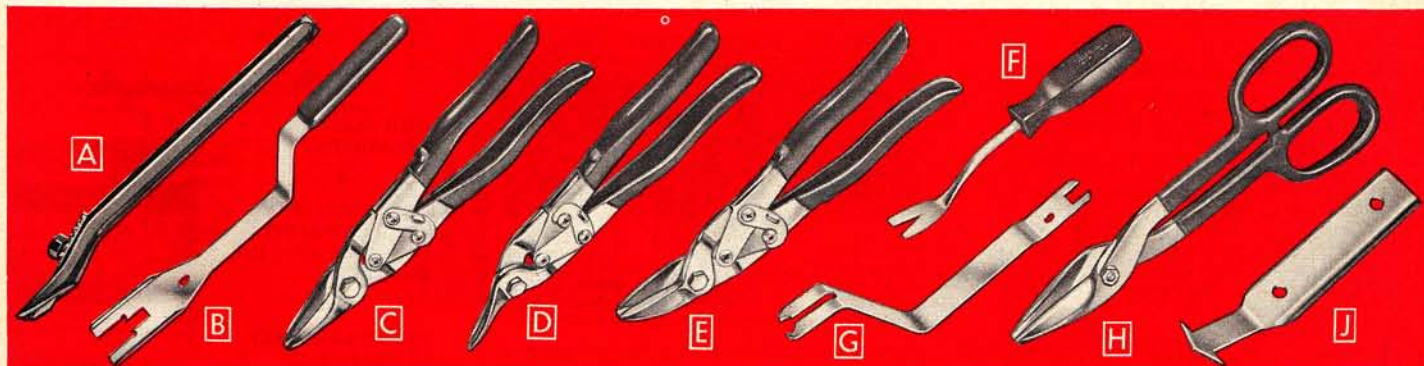
EXTENSION TUBES AND ATTACHMENTS

Made of Seamless Steel Tubing tested to withstand greater pressures than you will ever apply with the "Hydra-Ram". They are quickly attached to the "Hydra-Ram" by means of free-turning threaded ends that are protected against burring by a special safety step. Holes are provided for positioning the clamp units. Pins lock the clamps onto the tubes.

Malleable and special alloy steels are used in all "Hydra-Pak" attachments and pads, and the castings are carefully machined and surface-finished to assure safe, dependable operation and long life.

Contents of the Set

Key Letter	Stock No.	Description
A	BJ-10-1E	"Hydra-Ram"
B	BJ-10-2	Kwixtension
C	BJ-10-3	Adj. Spoon with BJ-10-3-2 Blade
D	BJ-10-3-3	Small Blade
E	BJ-10-4-1	Clamp Head
F	BJ-10-4-2	Clamp Toe
G	BJ-10-4-3	Clamp Pin (2 incl.)
H	BJ-10-5-1	Spreader Toe
I	BJ-10-5-2	Plunger Toe
J	BJ-10-6	Pad (Small)
K	BJ-10-7	Pad (Large)
L	BJ-10-8	Chain Plate
M	BJ-10-9	Chain Plate (2 incl.)
N	BJ-10-10	90° V-Base
O	BJ-10-11	90° V-Base (2 incl.)
P	BJ-10-12	Flat Base Pad
Q	BJ-10-13	Serrated Pad
R	BJ-10-14	Wedge End
S	BJ-10-15	3" Radius Pad
T	BJ-10-16	5" Radius Pad
U	BJ-10-17	Pad Coupler
V	BJ-10-18	Tube Coupler
W	BJ-10-21	6" Steel Tube
X	BJ-10-22	12" Steel Tube
Y	BJ-10-23	24" Steel Tube
Z	BJ-10-24	36" Steel Tube
ZA	BJ-10-27	"C" Clamp
ZB	BJ-10-27-1	Clamp Adaptor
ZC	BJ-10-28	Base Plate
ZD	BJ-10-29	½" Chain (2 incl.)
ZE	BJ-10-31	Angle Base Pad



BODY PANEL CUTTER

Long cuts in straight, curved or crooked lines are easy with this cutter. Reaches places where shears won't work. Cuts through body steels easily and leaves a clean edge which is especially desirable where a section of panel is removed and new steel welded in place. Made from best grade chisel steel. The replaceable blade is made of finely tempered spring steel.

- (A) BF-708C Panel Cutter. With one blade.
BF-708C-2 Extra Cutter Blade.

DOOR HANDLE TOOL

(B) A-159 Door Handle Tool. For use on Ford products and General Motors products through 1967 (except Cadillac) and for other cars except Chrysler products. Tool tips spread the spring clip to allow handle removal. Clip remains on handle collar. Tool is 10½" long with a red plastic covered off-set handle. Shovel type end is 2¼" wide.

METAL CUTTING SHEARS

For cutting duraluminum, stainless steel and other tough, hard metals. Narrow body allows the cut metal to pass freely over snip. Blades have serrated cutting edges for easier cutting. Handles are covered with oil and grease resistant soft red plastic. Heat treated, chrome plated, 10¼" long.

- ▲ (C) DAS-10 Straight Cut Shears.
▲ (D) DAR-10 Right Cut Shears.
▲ (E) DAL-10 Left Cut Shears.

DOOR PANEL REMOVER

(F) A-161A Door Panel Remover. For fast, easy way to remove inside door panel on GM, Ford and Chrysler products. Forked end is offset to provide prying action for nail and spring clip removal. 4½" long shaft, plastic handle, overall length 7¾".

DOOR HANDLE TOOL

(G) S-9538A Door Handle Tool. For late model cars except Chrysler products. Inside flange construction of old and newer handles is different. Hook end of tool works on old style handles.

(H) TINNERS' SNIPS

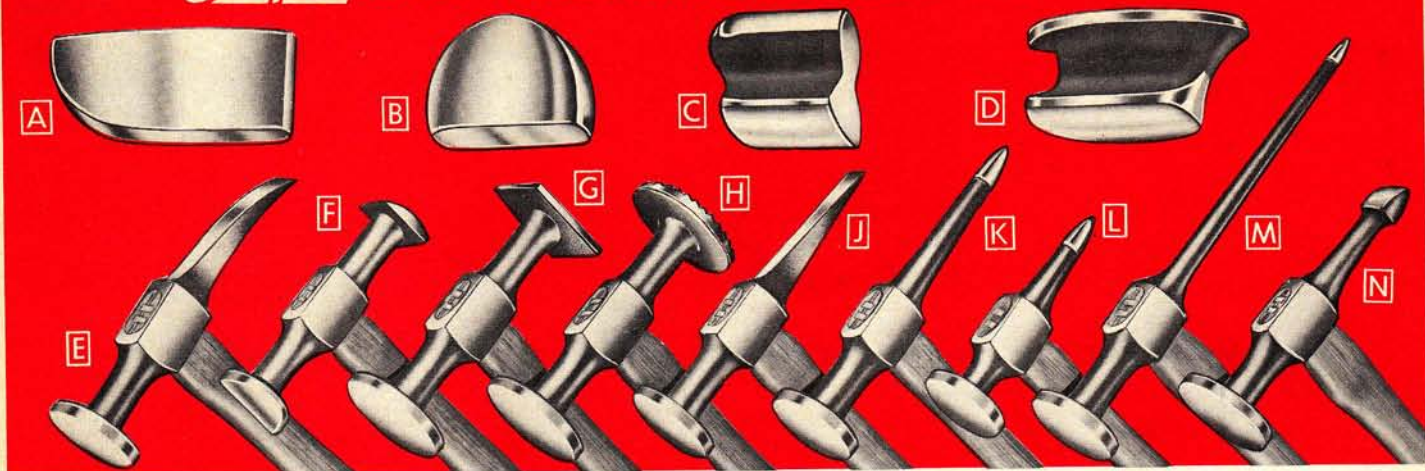
Finest professional quality snips. Three sizes handle a wide variety of jobs and materials. Hammer forged from high quality alloy steel with cutting edges accurately ground. Will cut straight, circular or irregular shapes in right or left hand direction. Blades are shaped to draw metal into the jaws. Have great leverage for cutting heavy metals. Large finger grips afford comfortable grip.

- ▲ CD-7 Snips. 1½" blades, 7" overall length.
CD-10 Snips. 2¼" blades, 10" overall length.
▲ CD-12 Snips. 3" blades, 12" overall length.

(J) MOLDING RELEASE TOOL

GA-243 Molding Release Tool. Easily removes clips and releases windshield and rear vision moldings on all cars with cemented glass . . . handles both Ford and GM moldings. Front edge is beveled for easy entry and angled points permit pulling at a right angle for easy manipulation. Right and left release points allow working from either side of clip. Use carefully to prevent glass breakage.

Snap-on BODY TOOLS ARE THE FINEST YOU CAN BUY



A BF-710A Toe Dolly. With its many curves and edges, this tool fits a great many of the odd curves found on modern streamlined cars. 4 $\frac{3}{4}$ " long, 2 $\frac{1}{4}$ " wide, 1 $\frac{1}{8}$ " high. Wt. 2 $\frac{1}{2}$ lbs. A time saver on many jobs.

B BF-711 Heel Dolly. A good basic tool for it handles a majority of jobs on new or old cars. 3" long, 2 $\frac{1}{4}$ " wide, 1 $\frac{3}{8}$ " high. Weight 2 $\frac{1}{4}$ lbs. Should be in every body repair kit.

C BF-712 General Purpose Dolly. Especially designed for deep skirted fenders. Semi-flat surface is useful for shrinking work where heat is used. 3" long, 2 $\frac{1}{4}$ " wide, 2 $\frac{1}{4}$ " high. Weight 2 $\frac{3}{4}$ lbs.

D BF-714 Anvil Dolly. The most essential and useful dolly made. The streamlined wide curved faces fit contours of all portions of the body and door panels. Provides ideal surface for most fenders. Small oval is perfect for outside curves when hammer is used on the inside of the work. 4" long, 2 $\frac{3}{4}$ " wide, 2 $\frac{1}{8}$ " high. Anvil faces 1 $\frac{3}{4}$ " by 4"; 2 $\frac{3}{4}$ " by 3". Wt. 2 lbs. 14 oz.

E BF-608 Short Curved Cross Peen Hammer. Curved peen is for use under rolled edge fenders. Has perfect finishing face for use as regular dinging hammer. 5 $\frac{5}{16}$ " long, 1 $\frac{5}{8}$ " round face, $\frac{5}{8}$ " by $\frac{1}{16}$ " peen end. 13" handle. Wt. 11 $\frac{1}{2}$ oz.

F BF-615 Reverse Curve Light Bumping Hammer. The odd contours of fenders and bodies in the new automobiles with the "sculptured" look require a tool of this design. Head is 4" long, one face is 1 $\frac{1}{4}$ " square, the other is 1 $\frac{3}{16}$ " diameter round. Each face has a 1 $\frac{1}{16}$ " radius curve for use on reverse curves on fenders, headlights, doors, etc. 12" handle, wt. 12 oz.

G BF-606 Wide Face Shrinking Hammer. Wide faces are essential for shrinking operations on heated metal panels. Both faces absolutely flat to prevent stretching metal. Also used for panel bumping. 4 $\frac{1}{4}$ " long 1 $\frac{7}{8}$ " round face and 1 $\frac{5}{8}$ " square face. 13" handle. Wt. 17 oz.

H BF-617 Shrinkage Hammer. Has extra wide faces for shrinking and working large surfaces. Round $\frac{7}{8}$ " face has cross-milled serrations for shrinking and 1 $\frac{5}{8}$ " diameter round face is smooth for finishing. 4 $\frac{1}{4}$ " long. 13" handle. Wt. 1 lb.

J BF-604 Wide Nose Cross Peen Hammer. Excellent for finishing. Cross peen is useful for working in sharp corners around mouldings and for caulking. 5 $\frac{1}{2}$ " long, 1 $\frac{5}{8}$ " round face. Peen end $\frac{5}{8}$ " wide, $\frac{1}{16}$ " thick. 13" handle. Weight 11 $\frac{1}{2}$ oz.

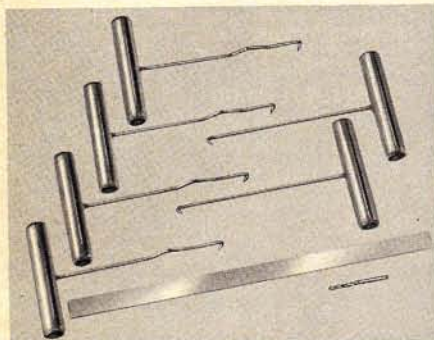
K BF-603 Long Low Spot Pick Hammer. Especially adapted for bumping out small, low spots while filing. Saves solder. Recommended for use wherever metal is covered with sound-proofing materials, such as tops, bodies and doors. 6 $\frac{1}{8}$ " long, 1 $\frac{1}{32}$ " round face. Pick tapers to a $\frac{1}{16}$ " point from a $\frac{1}{16}$ " base. 13" handle. Wt. 12 $\frac{1}{2}$ oz.

L BF-611 Picking and Dinging Hammer. For smoothing out small dents and for general dinging work. 4" long, 1 $\frac{1}{32}$ " round face, $\frac{1}{16}$ " point tapered from $\frac{1}{16}$ " base. 12" handle. Wt. 8 oz.

M BF-614 Long Picking Hammer. 6" long picking shaft with rounded point... good for turret and deep fender work. The round flat face is 1 $\frac{5}{8}$ " diameter. Overall head length is 8 $\frac{3}{8}$ ". Wt. 1 lb. Handle is 17" long.

N BF-618 Wide Nose Peen Hammer. This hammer features a wide nose peen specially designed for working around moldings and other sharply curved areas on modern automobiles. The round convex end has a smooth surface and is useful for bumping the odd contours of fenders and bodies in cars with the sculptured look. The head is 5" long with a 1 $\frac{1}{16}$ " diameter round face and a $\frac{3}{16}$ " x $\frac{1}{8}$ " peen end tapered from a 1" base. Handle is 12" long. Weight is 12 $\frac{1}{2}$ oz.

PULL ROD SET DOES A FAST JOB



Save time on many body jobs by drilling $\frac{3}{4}$ " holes and pulling metal to original shape from the outside. No need to remove headliners, upholstery, etc. Do the job in a fraction of former time. Pull Rods have formed relief to prevent distortion of the hole and a $\frac{3}{8}$ " flat area to lift metal without distortion. Pick Pulls have a thin point to enter between closely spaced panels. Instructions furnished with each set.

BF-200 Pull Rod Set includes 4 Pull Rods; 2 Pick Pulls; 1 stainless steel straight edge and 1 high speed $\frac{3}{4}$ " drill.

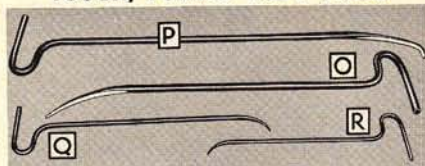
FIBERGLAS HANDLE KITS

For use on any hammer. Kit consists of a fiberglass handle, plastic ferrule collar, curved and flat ferrule caps, sealing tape, two tubes of "Nuplabond," stirring stick, instructions and hammer handle size chart.

BPH-120 12" Handle Replacement Kit.

BPH-160 14" Handle Replacement Kit.

TOUGH, FORGED BODY PICKS



For pushing out small dents with a twisting or prying action in very tight spots. Forged and heat treated to give strength and toughness. Handle end aids in manipulation.

Q BF-1106 26 $\frac{1}{2}$ " long with curved point at right angle to handle, $\frac{9}{16}$ " round stock.

P BF-1107 31" long with curve and point at right angle to handle, $\frac{9}{16}$ " round stock.

Q BF-767A 18" long with curved point at right angle to handle, $\frac{3}{8}$ " round stock.

R BF-766A 14" long with curved point at right angle to handle, $\frac{5}{16}$ " round stock.

FIRST GRADE HICKORY HANDLES FOR ABOVE BODY HAMMERS

All handles used in the body hammers shown above are first grade hickory and are securely anchored in the head with metal and wood wedges. Handles have octagon shaped ends to provide a good grip. Order an extra handle or two in case of breakage.

BF-603-2 Handle. For use with BF-603, BF-604, BF-606, BF-608 and BF-617. 13" long.

BF-611-2 Handle. For use with BF-611, BF-615 and BF-618. 12" long.

BF-614-2 Handle. For use with BF-614. 17" long.

ANTI-SEIZE COMPOUND

HIGH SEALING CAPABILITIES

NOT AFFECTED BY TEMPERATURES FROM -30 TO +300 DEGREES F.

EASY DISASSEMBLY OF PARTS EVEN OF DISSIMILAR METALS



Anti-Seize Compound has the quality to prevent seizure, to seal and to protect metal under adverse pressure and heat conditions. Protective coating retains much of its anti-seize properties to temperatures as high as 2200 degrees F., is a good conductor of electricity, does not act as an electrolyte, and there is no danger of galvanic pitting even though dissimilar metals are joined. It is very useful on threaded or pressfit assemblies. Costly wear on parts can be minimized since it cannot be easily washed off and cannot be burned off or removed entirely by abrasion. This compound can do the job of keeping your costs down by extending the life of your machinery and keeping parts in a like new condition. **Caution: Should not be used with oxygen systems.**

SIZES AVAILABLE

RAS-4 $\frac{1}{4}$ lb. Anti-Seize Compound
RAS-16 1 lb. Anti-Seize Compound
RAS-64 4 lb. Anti-Seize Compound
RAS-128 8 lb. Anti-Seize Compound

FILES AND FILE HANDLES



A FLEXIBLE FILE HOLDER

BF-775B Flexible File Holder. Light and rigid over a wide range of concave and convex adjustments. Big aluminum handles provide ample grip for large hands—high clearance turnbuckle protects knuckles. Heat treated turnbuckle screws insure positive adjustment. Permanently attached strap takes 14" files.

B FILES FOR ABOVE HOLDER

14-V Flat Flexible Curved-Tooth File, eight teeth to the inch. 14" long.

14-V7 Flat Flexible Curved-Tooth File, seven teeth to the inch. 14" long.

14-V6 Flat Flexible Curved-Tooth File, six teeth to the inch. For work on soft materials, plastic, fiberglass, etc. 14" long.

14-VHR Vixen Shell Type Half-Round File. Use where a milled-tooth half-round file is required on bearing work or on body work. Eight teeth per inch on convex side only. 14" long.

STRAIGHT WOOD FILE HOLDERS

These file holders are made from hard maple. They are light and durable, and narrow enough to allow file overhang on both sides. File can be convexed by inserting wedge under center. Use with the 14-V, 14-V6, or 14-V7 14" Vixen files listed at left.

C BF-142 Straight Type File Holder.

D BF-141 Saw Handle Type File Holder.

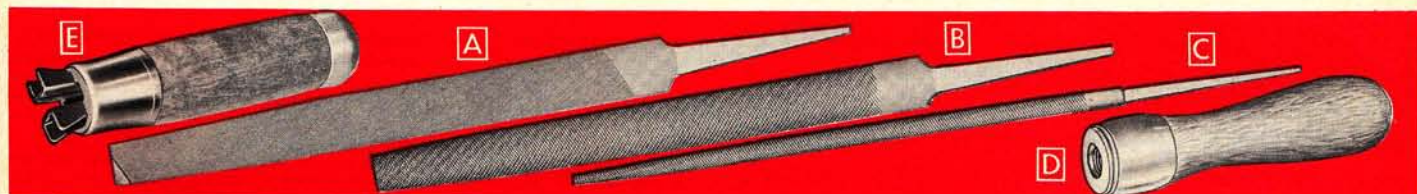
E BUMPING FILES

▲ HB-303 Bumping File Set. These three files are 12" long and 1 3/8" wide, and are used like hammers with dolly blocks to slap out dents in bodywork. They do not expand the metal but rather tend to contract it to the original shape. Set contains the three files listed below.

▲ HB-2088 Flat, Coarse Cut File

▲ HB-2089 Flat, Medium Cut File

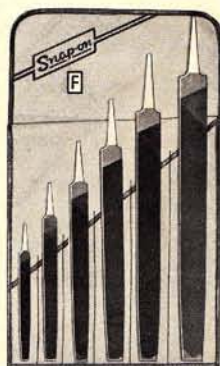
▲ HB-2090 Half-Round Medium Cut File



HIGH QUALITY "NU-CUT" FILES

Made from high-grade alloy steel and heat treated to give maximum toughness and durability, these files will continue to do a good cutting job long after ordinary files have worn out. Teeth are cut with uneven spacing to assure smoother, faster cutting and provide self cleaning action. Every file is the same high quality... adherence to rigid manufacturing and hardening processes prevents any variance between finished files.

Length	A Mill Files Stock No.	B Half Round Files Stock No.	C Round Files Stock No.	Diam.
6"	6-M	6-HR	6-R	7/32"
8"	8-M	8-HR	8-R	9/32"
10"	10-M	10-HR	10-R	3/8"
12"	12-M	12-HR	12-R	1/2"
14"	14-M	.....	.....	.....
16"	16-M	.....	.....	.....



Protect Your Files — Buy Sets With Kit Bags

F HBM-60-K Set. 6", 8", 10", 12", 14" and 16" Mill files in C-66B kit.

G HBM-40-K Set. 6", 8", 10" and 12" Mill files in C-46B kit.

HBH-40-K Set. 6", 8", 10" and 12" Half Round files in C-46B kit.

HBH-40-K Set. 6", 8", 10" and 12" Round files in C-46B kit.

D WOOD FILE HANDLES

The safety minded mechanic will insist on attaching a handle to every file before he uses it. These high quality handles have a hardened steel thread cutting die insert which is secured in place with the metal ferrule. Instead of hammering the handle onto the file tang you screw it on and the die cuts its own threads into the tang and holds securely until you unscrew it.

GA-403 Fits the 6-R file.

GA-404 Fits the 6-M, 6-HR and 8-R files.

GA-406 Fits 8-M, 8-HR, 10-M, 10-HR, 10-R and 12-R files.

GA-408 Fits 12-M, 12-HR, 14-M and 16-M files.

E TOOL HOLDER

GA-98 Tool Holder. Provides large, comfortable grip for files and other tools. Has two adjustable serrated jaws that grip tool so it cannot turn. Jaws controlled by metal cap on end of handle. Maximum opening 3/4", 4 1/2" long, diameter 1".

GA-302 PCV TESTER

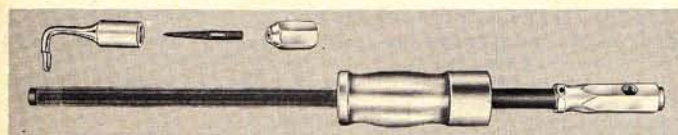
CHECKS THE SMOG
VALVE... INSTANTLY...
SAFELY... DEPENDABLY

KEEPS THE ENGINE
OPERATING SAFELY
AND EFFICIENTLY

IT IS FAST... EASY...
AND SIMPLE TO USE



GA-302 PCV Tester. With the engine idling, place the tester over the oil fill hole. Make an instant, direct reading — as the ball quickly moves to either the green or the red section. If it goes to the red side the PCV valve needs servicing to protect against sludge build-up, high gasoline consumption, over-all sluggish operation and eventual engine damage.



BODY DENT PULLER

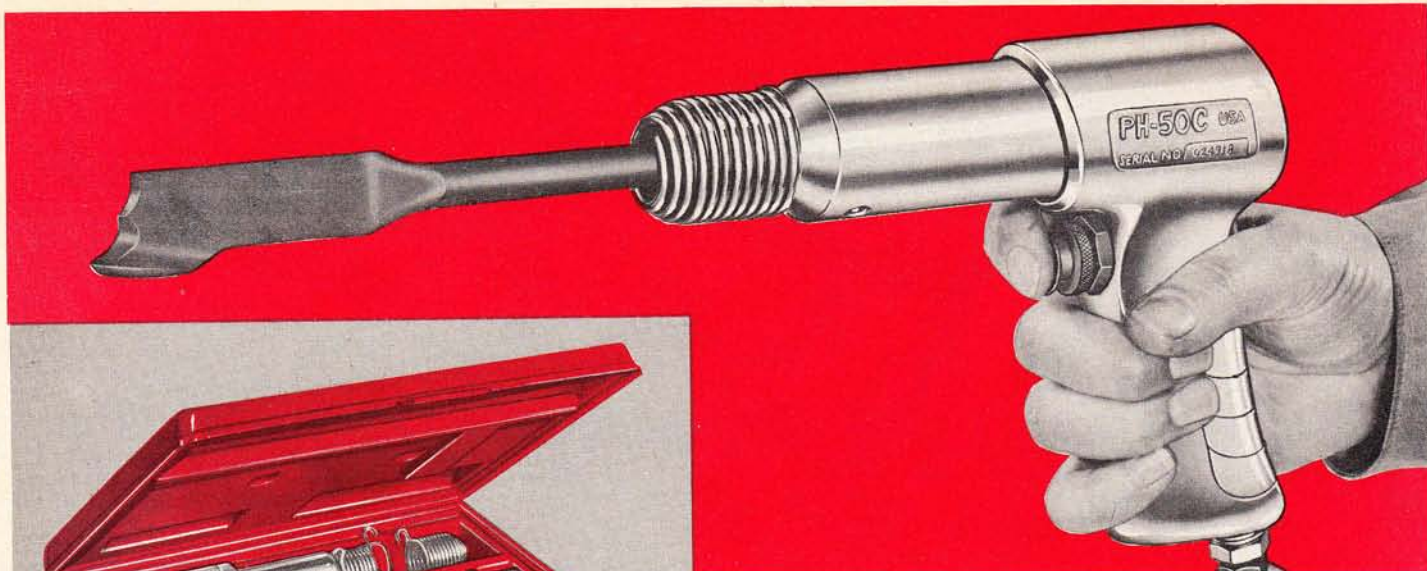
CJ-107 Body Dent Puller. Makes fast, easy pulling of dents possible without removing window mechanism trim panels, roof headlining or other part of inside of panels. It lets you pull dents out far enough to allow for filling with fiberglass resin or lead.

The taper screw and adaptor are attached to the slide shaft... the screw point is held in the center of the dent and driven into the metal with a slide hammer blow. Turn the shaft so that the screw grasps the metal securely, then use slide hammer action to pull the dent out. You may need to do this at several places to pull the dent out enough for filling. The "L" Hook Adaptor can be inserted into the hole to pull out larger areas.

CJ-107-4 Adaptor. Not included in the set. Permits use of the tapered screw with CG-250-8 Slide Shaft and CJ-250-9 Hammer.

Contents of Set

Stock No.	Description
CJ-97-3	Slide Hammer
CJ-105-4	Shaft
CJ-107-1	Taper Screw
CJ-107-2	Screw Adaptor
CJ-107-3	"L" Hook Adaptor



Grab a mittful of POWER! New **Snap-on** Air Hammer

For unmatched speed, durability, dependability, versatility, design and appearance, the PH-50C answers all your needs. It masters any job you give it — cutting, chipping, prying, scraping, punching — quickly and easily.

Blow for Blow, Dollar for Dollar, It's the Best

90-125 psi operating range ■ chrome finished steel, one-piece barrel ■ lightweight aluminum handle ■ honed cylinder walls ■ wear resistant spring steel flutter valve ■ air line connection threads into a replaceable bushing ■ universal spring handles all bit sizes ■ beehive safety spring and retaining collar for positive retention of all bit sizes ■ adjustable trigger regulates air flow ■ complete range of bits for added versatility



PH-50C Pneumatic Hammer. Described at right. Equipped with universal retaining spring, beehive retaining spring and bushing.

PH-505D Hammer Set. Consists of PH-50C Hammer and four tool bits, PH-51A, PH-55, PH-57 and PH-60 in PB-1 molded plastic case.

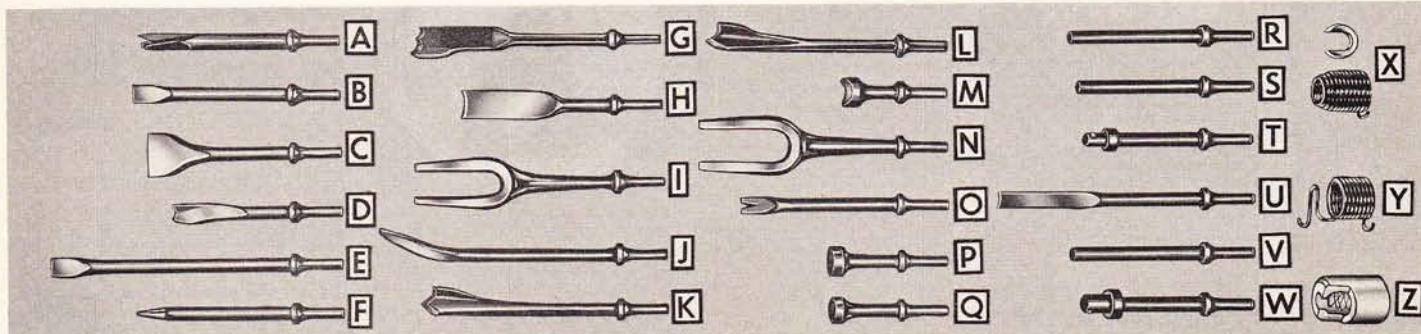
PB-1 carrying case, also available separately.

ACCESSORY UNITS — Fit Any Standard Air Hammer

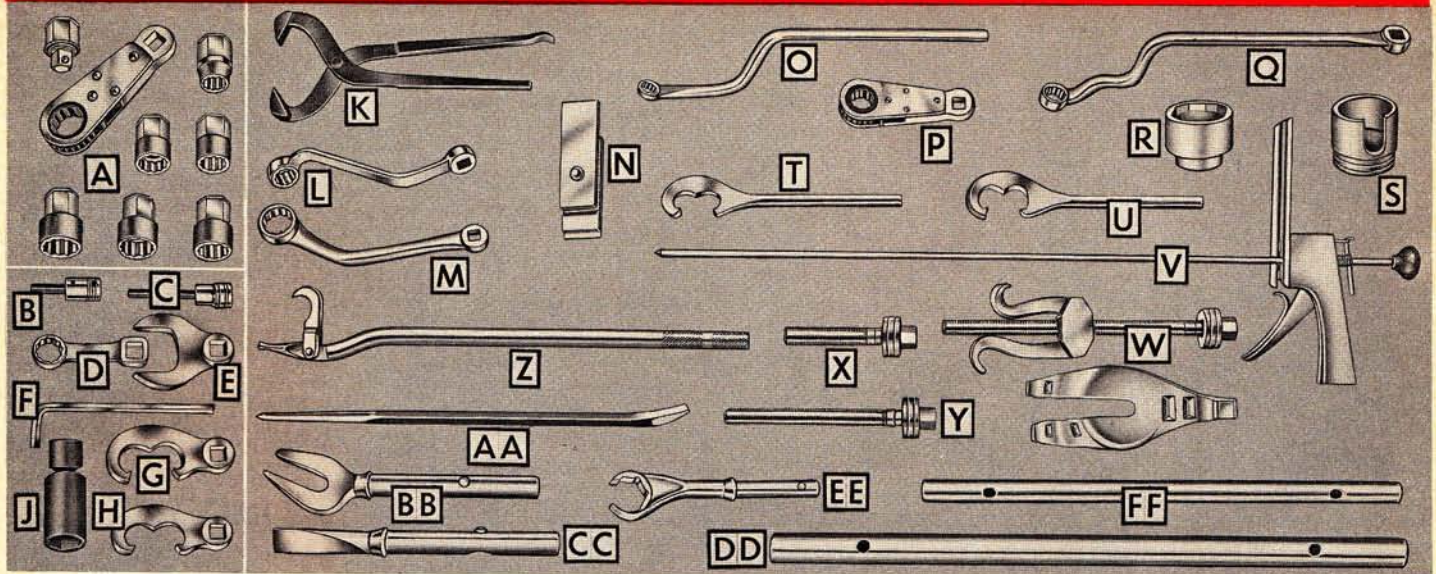
- A PH-51A Panel Cutter.** Edges and trims sheet metal without stretching or distortion. Clean edge eliminates much filing and grinding.
- B PH-55 Flat Chisel.** 7" long, $\frac{5}{8}$ " blade width. Cuts frame members, bolts, tees and angles. Use to split nuts and bevel steel plate.
- C PH-56 Scraper.** $6\frac{3}{4}$ " long, $1\frac{1}{2}$ " wide flat blade. Remove grease, mud, undercoating, etc.
- D PH-57 Panel Cutter.** (radius) $5\frac{3}{4}$ " long with "V" shaped cutter head. For slicing bushings, cylinder sleeves or splitting muffler pipes.
- E PH-58 Flat Chisel.** $9\frac{3}{4}$ " long, $\frac{5}{8}$ " blade width. Similar to the PH-55, but its longer length is needed on many jobs.
- F PH-59 Tapered Punch.** 7" long, tapers to $\frac{3}{16}$ " point.
- G PH-60 Inside-Outside Chisel.** For peeling tail pipe from muffler or muffler from exhaust pipe without damage to inner section.
- H PH-61 Slitting Chisel.** 7" long, curved 1" wide blade. Cuts tail pipes, exhaust pipes, etc., when muffler is still usable.
- I PH-63 Ball Joint Separator.** $8\frac{1}{8}$ " long, has a $1\frac{1}{16}$ " spread between forks. For use on most cars, also works on larger size tie rods.
- J PH-64 Bent End Chisel.** $9\frac{3}{4}$ " long. Used for shearing off rivets holding ball joints and front end fixtures. Reaches between flanges.
- K PH-65 Outside Muffler Cutter.** $8\frac{1}{4}$ " long. For cutting or peeling back the muffler from the tail pipe without damage to the pipe itself.
- L PH-66 Inside Muffler Cutter.** $8\frac{1}{4}$ " long. Cut pipe off at muffler, use PH-66 to cut out the part left in the muffler.
- M PH-67 Tie Rod Sleeve Breaker.** $3\frac{3}{8}$ " long. Round groove in head fits against tie rod end and arm joint and vibrates them apart.
- N PH-69 Ball Joint Separator.** $8\frac{1}{2}$ " long, 1" spread between the forks enables its use on the larger ball joints.

- O PH-70 Spot Weld Breaker.** $6\frac{1}{2}$ " long. Blade is $\frac{9}{16}$ " wide and has a "V" cutter notch and channel.
- P PH-71 Round Hammer.** 4" long, 1" diameter head. Drives nails in industrial construction with heavy consistent blows.
- Q PH-72 U-Joint Trunion Driver.** $3\frac{3}{8}$ " long, $\frac{7}{8}$ " diameter head. $\frac{5}{8}$ " concave area removes and replaces needle-type universal joint trunions used on most cars, light trucks and some other machinery.
- R PH-73 Pin Punch.** 6" long, $\frac{1}{2}$ " diameter flat head. Drives pins or bolts in almost any type of heavy-duty industrial construction.
- S PH-74 Riveter.** 6" long, $\frac{1}{2}$ " diameter head with $\frac{5}{16}$ " diameter dimple for use with $\frac{3}{16}$ " rivets.
- T PH-75 Bushing Driver.** $5\frac{1}{2}$ " long, $\frac{1}{2}$ " diameter shaft. For quick removal and replacement of bushings. Used with A-157A Bushing Driver Set.
- U PH-76 Bushing Cutter.** $8\frac{1}{2}$ " long, $1\frac{1}{32}$ " wide curved cutting edge for splitting soft metal bushings.
- V PH-78 Riveter.** 6" long, $9\frac{1}{2}$ " diameter head with $\frac{3}{4}$ " diameter dimple for use with $\frac{1}{4}$ " rivets.
- W PH-79 Bushing Driver.** $5\frac{11}{16}$ " long, $\frac{5}{8}$ " diameter shaft. Used with the A-158 Bushing Driver Set for muffler and tail pipe work.
- X PH-50-SBS Beehive Spring and Bushing Set.** Firmly locks the bit to the hammer. Includes PH-50-11A Spring and PH-50-13 Bushing.
- Y PH-50-10P Quick Change Universal Spring.** Fits all bits for fast, easy insertion and removal of the bit from the hammer.
- Z GA-250 Safety Chuck Chisel Holder.** 2" long, $1\frac{1}{2}$ " diameter. Firmly locks chisel in place to prevent chisel from loosening and shooting out of hammer.

AWS-16 Pint Can Solvent. (not shown). Flushes out impact tools.



Snap-on FRONT END ALIGNMENT TOOLS



A WA-308 Caster-Camber Adjusting Wrench Set. Consists of WA-28 Torque Adaptor Wrench, 6 special hex drive sockets and an adaptor which adapts the wrench to any $\frac{1}{2}$ " square drive socket.

WA-308-B Set. Above set in KRA-40 metal box.

WA-28 Torque Adaptor Wrench 5" long with a $\frac{1}{2}$ " square drive opening in the handle and a $\frac{7}{8}$ " double hex reversible ratcheting "Boxocket." When used with a SNAP-ON TE-175 Torqometer it provides an accurate method of adjusting without oversteering.

WA-28-8 Adaptor. $\frac{7}{8}$ " hex end fits the WA-28 Wrench, drive end fits any $\frac{1}{2}$ " square drive socket.

Double Hex Sockets	
WA-28-20 $\frac{5}{8}$ "	WA-28-26 $1\frac{1}{16}$ "
WA-28-22 $1\frac{1}{16}$ "	WA-28-28 $\frac{7}{8}$ "
WA-28-24 $\frac{3}{4}$ "	WA-28-30 $1\frac{1}{8}$ "

KRA-40 Metal Box. Not shown but available as optional container for WA-308 Set. Size: $9\frac{1}{2}$ " x $5\frac{1}{2}$ " x 2".

B FA-10B 5/16" Caster-Camber Hex Wrench.

C FAL-8 1/4" Caster-Camber Hex Wrench.

D S-6206 Caster-Camber Adjustment Wrench. For use on the Chevrolet Corvair, Van, Pick-Up and Greenbrier as well as the Pontiac Tempest. 3" long with $1\frac{1}{16}$ " double hex "Boxocket" at one end and $\frac{1}{2}$ " square drive on other. Has chrome plated finish.

E Crowfoot Caster-Camber Wrenches. Heads only $\frac{1}{4}$ " thick. Have $\frac{1}{2}$ " square drive. The following five sizes are available.
S-8661A $1\frac{1}{16}$ " **S-8272** $1\frac{1}{4}$ " **S-8662A** $1\frac{1}{8}$ "
S-8175 $1\frac{3}{8}$ " **S-9156** $1\frac{1}{2}$ "

F AWL-8 Caster-Camber Adjustment Wrench. For the $\frac{1}{4}$ " hex head set screw adjustment on most GM cars. Hardened for long service. $5\frac{1}{4}$ " length to bend.

G WA-12 Toe-In Adjusting Tool. Will fit larger cars and trucks. The two-position hooks make fast work of turning tie rod sleeve. $\frac{1}{2}$ " square opening will accept any $\frac{1}{2}$ " handle for turning.

H WA-13 Toe-In Adjusting Tool. Same design as above but handles most passenger cars.

I SIMB-280A 7/8" Ball-Type Flexocket. For caster-camber adjustment on all 1961-64 Olds except the F-85. $3\frac{3}{16}$ " long with $\frac{1}{2}$ " square drive.

K GP-10 Grease and Hub Cap Tool. One handle has a bent edge that fits behind the hub cap to pry it loose. Tapered jaws fit behind the ridge of the dust cap for easy removal of the tightest cap. Length is $10\frac{3}{8}$ ".

L S-8686A Caster-Camber Boxocket. $\frac{3}{4}$ " Double Hex. For 1957-64 Ford, 1957-64 Mercury and 1960 Edsel. Has double bend to provide clearance. Use with a TE-175 "Torqometer." Set Torqometer dial at one-half of the desired torque.

M S-8366 Torque Adaptor. For lower control arm attaching bolt on 1962 and older Rambler. $8\frac{3}{4}$ " long, $1\frac{1}{16}$ " double hex opening. Use with a TE-175 Torqometer. Set Torqometer dial at $\frac{3}{4}$ the desired torque.

N S-8697 Serration Breaker. Needed to break loose the serrations on the upper control arm shaft from the frame when making caster-camber adjustments on the Ford Fairlane. The adjustable length of this tool adapts it to varying job requirements and eliminates the need for a set of different size tools.

O S-6203 Wrench. For 1960-67 Chevy Corvair caster-camber adjusting. $10\frac{1}{2}$ " long, $\frac{9}{16}$ " double hex opening.

P WA-24 Caster-Camber Wrench. $\frac{3}{4}$ " Double hex, reversible ratcheting action. Needed for adjustment on late model Olds and Pontiac cars. Designed for use with $\frac{1}{2}$ " drive Torqometer. $5\frac{1}{32}$ " long.

Q S-9545 Torque Adaptor. For caster-camber adjustments on Chevy (except 1959) with 348 cu. in. engine. Also other Chevy 1955-67 and 1964-67 Chevelle, Pontiac Tempest, Buick Special and Olds 85. $14\frac{1}{4}$ " long, $1\frac{1}{16}$ " double hex opening and $\frac{1}{2}$ " square drive opening to take TE-175 Torqometer. Set Torqometer dial at one-half desired torque for correct tension.

R S-9365A Ball Joint Socket. For Dodge and Plymouth cars. $\frac{3}{4}$ " square drive.

S WA-14A Tie Rod End Socket. Fits nearly all cars and some trucks. Use with any $\frac{1}{2}$ " drive handle or impact wrench. Chrome plated. "U" opening $1\frac{3}{8}$ " x $\frac{3}{4}$ ", I.D. $1\frac{1}{16}$ ". $2\frac{1}{4}$ " long.

Tie Rod Adjusting Tools for turning tie rod sleeve to adjust toe-in. Designed with 2-position jaw and double hook. Have knurled handle to provide secure grip.

T WA-10 For passenger cars.

U WA-11 For larger cars and trucks.

V B-240 Brake and Throttle Pedal Jack. Action is similar to that of a caulking gun but without notches . . . this allows fine control of r.p.m. Handle slides to any position on the shaft for fast placement . . . pressure is released instantly when desired. Shaft is $24\frac{1}{2}$ " long.

W GA-258 Coil Spring Compressor Set. Holds a coil spring in its compressed state to permit easy removal. This set is especially useful in front end work, because it will allow spring to be held at a desired tension while removing other parts. Screw is 11" long.

X GA-268 5 1/2" Accessory Bolt For GA-258. Adapts the coil spring compressor listed above to handle Fiat 1200 & 1500 - Hillman Minx - MG, MGA - Mercedes Benz 219, 220S, 220SE - Opel - Renault - Simca Aronde - Triumph - Vauxhall - Volvo 440 & 544.

Y GA-267 8" Accessory Bolt For GA-258. Adapts the compressor to handle Ramblers.

Z WA-171B Caster-Camber Adjusting Hook for use on Ford Galaxie and Mercury. Hook fits over upper suspension arm inner shaft and the tapered end into hole in frame provided for this purpose. After loosening the shaft bolts both caster and camber are adjusted by moving the shaft in or out as needed.

A A No. 1658 Pinch Bar. 16" long, $\frac{1}{2}$ " stock. $\frac{5}{8}$ " wide prying blade at one end . . . tapered point on the other.

A-226 Grease Bar and Caster-Camber Set. Consists of handle and two end pieces. Versatile tool for variety of prying and bending operations. Parts lock solidly, can be separated accidentally. Overall length is $32\frac{1}{2}$ ".

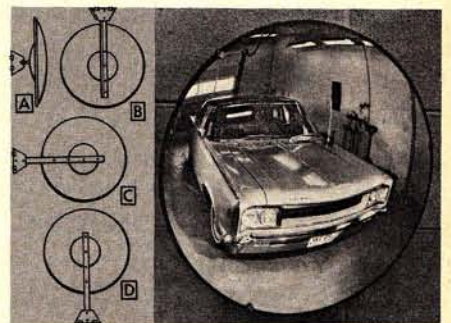
B B A-226-1 End Piece. Has $\frac{5}{8}$ " opening to pry shackles. $10\frac{1}{4}$ " long.

C C A-226-2 End Piece. Blade tapers to $\frac{1}{16}$ " and is $\frac{3}{4}$ " wide.

D D 24" Subular Handle. High grade seamless steel tubing, 24" long overall. Has two openings for locking buttons of end pieces.

E E WA-15A Caster Adjusting Wrench for Ford, Chevy & Cadillac. This $1\frac{1}{2}$ " Flank Drive Flare Nut Boxocket is especially designed for adjusting Caster on the above cars. The opening in the wrench head permits it to slip over the strut rod. The 1" offset permits adjusting Caster on Cadillacs where the adjusting nut is set back against the frame. The tool is designed to be used with our No. 18A Tubular Handle and has a locking button to engage the locking hole in the handle. Assembled length is $22\frac{1}{4}$ ". The Tubular Handle is not included with the wrench.

F F No. 18A Tubular Handle. 18" long, $\frac{5}{8}$ " I.D., $1\frac{1}{16}$ " O.D.



18" CONVEX MIRROR

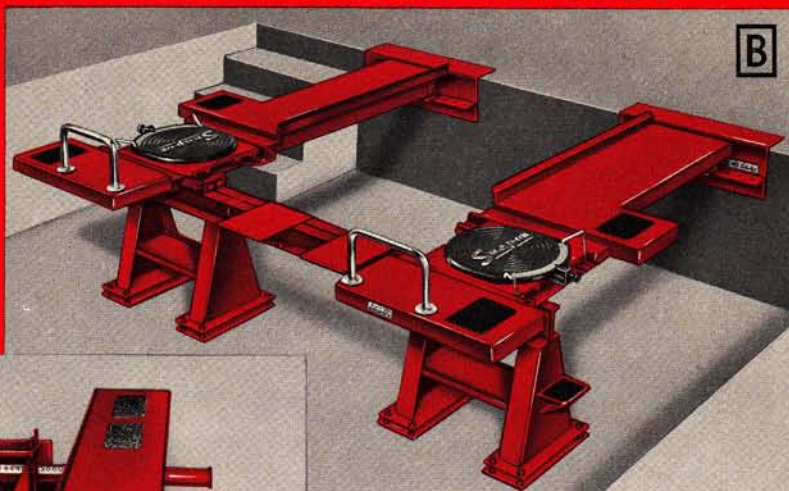
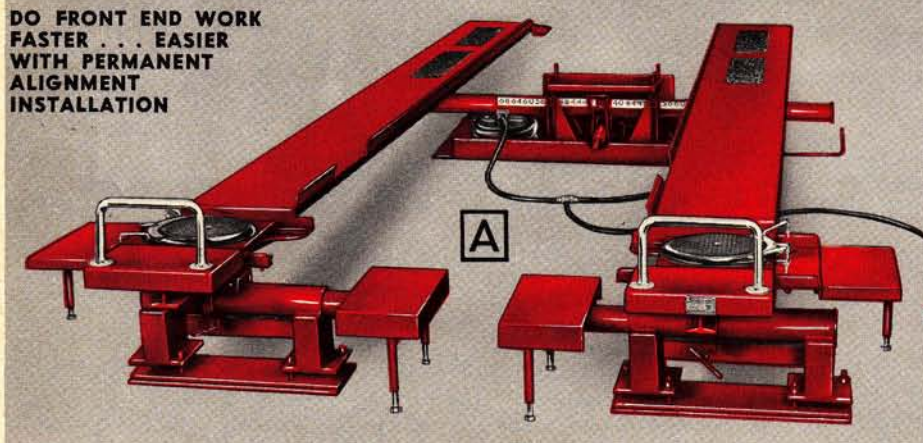
GA-235 18" Convex Mirror. A two-mirror set-up lets you see the entire front and rear of the vehicle as you sit behind the wheel . . . lets you check headlights, turn signals, tail and back-up lights. It is convenient and time saving. Mirror is 18" diameter and is fastened to a masonite back with an adjustable swivel base. Base attaches to a mounting bracket and can be fastened to most any surface in several positions.

- A** Swivel base mounted flush to a wall.
- B** Hung from ceiling on base and bracket.
- C** Extended from wall on base and bracket.
- D** Mounted upright on top of a shelf.

BIG PROFITS CAN BE YOURS WITH

Snap-on® **WHEEL ALIGNMENT EQUIPMENT**

**DO FRONT END WORK
FASTER . . . EASIER
WITH PERMANENT
ALIGNMENT
INSTALLATION**



Alert businessmen can cash in NOW, on the exciting profit opportunities in Front End Alignment—The Fastest Growing Service. Approximately 80 Million cars on the road today provide tremendous profit potential, as state inspections have proven that 7 out of every 10 cars need alignment.

A AIR LIFT DRIVE-ON RAMP

Turntables are NOT included

WA-201B Drive-on Ramp. A permanent but easily installed unit which raises to a level position of 17" high. Lifting capacity is 6,000 lbs. Tracks adjust in width to handle various vehicles from compact cars to light trucks. Jack stands accept air jacks (See page 141) to raise front end from front or rear of wheel center. Foot stands on either side of ramp make over-the-fender adjustments easy. All stands have adjustable legs, and stands are removable for easy access to underside of vehicles. Control panel is equipped with an air gauge and air regulator. The air control valve has a "hold" position, to lock air in the bellows. The ramp is also equipped with a "safety leg" which automatically engages when the ramp is raised.

This ramp can handle a large volume of alignment jobs, with speed and efficiency. It is well suited for the large shop and provides a very professional touch to your Alignment business.

FEATURES AND SPECIFICATIONS

- Accepts Large or Small Turntables
- Remote control Air Gauge and Regulator
- Raises to 17" Level Position
- Built Rugged and Durable
- Convenient Foot Stands
- Track Width is Adjustable
- Has Adjustable Stands for Jacks

Length: 17 feet 2¼ inches.
Raised Height: 17 inches.
Width: Extended — 68", Closed — 40".
Runway Width: 14 inches.
Lifting Capacity: 6,000 pounds.
Air pressure required: 75-125 p.s.i.

Drive-on Ramp Alignment Sets

- 2067C-WA-SA Ramp Alignment Set.** Includes:
2064D-WA-SA Alignment Set. Page 139.
WA-201-B Air Lift Drive-on Ramp. Above.
2068C-WA-SA Ramp Alignment Set. Includes:
2064D-WA-SA Alignment Set. Page 139.
WB-303A Wheel Balancing Set. Page 142.
WA-201B Air Lift Drive-on Ramp. Above.

B PIT-TYPE RAMP

Turntables are NOT included

WA-73 Pit-Type Ramp. Prefer a pit type installation? This Ramp is ideal—Easily adapts to existing pits, or you can construct a new highly efficient pit from our available plans which include electrical outlet locations, air lines, guard rails, steps or ladder details, etc. The ramp is excellent for high volume work.

Extra long for easier torsion bar adjustments. Adjustable tracks handle various widths from compacts to light trucks. Jack pads provide mounts for your air jacks and are reversible for raising front ends from front or rear of wheel centers. Both jack pads and lightweight center beam are removable to permit full access to underside of vehicles. Sturdy side platforms with non-slip treads permit easy over-the-fender adjustments. Accepts both large and small turntables. Highly efficient and versatile, this pit ramp is a real profit builder and can turn your alignment business into a full time operation. (See air jacks on page 141).

FEATURES AND SPECIFICATIONS

- Accepts Large or Small Turntables.
- Track Width Adjusts on Rollers.
- The Runway is Reinforced.
- Removable Jack Pads Provided.
- Non-Slip Side Platforms.
- Has Removable Center Beam.
- Provides Ample Working Space.
- Adapts to Existing Pits.

Length: 6 feet 2¼ inches.
Adjustable Height from Pit Floor: 27"-33".
Width: Extended — 73", Closed — 40".
Width of Runway: 14 inches.
Weight Capacity: Vehicles up to 6,000 lbs.

Pit-Type Ramp Alignment Set

- 2070B-WA-SA Pit-Type Alignment Set.** Includes:
2064D-WA-SA Alignment Set. Page 139.
WA-73 Pit-Type Ramp. Above.
2069B-WA-SA Pit-Type Front End Set. Includes:
2064D-WA-SA Alignment Set. Page 139.
WB-303A Wheel Balancing Set. Page 142.
WA-73 Pit-Type Ramp. Above.

C PORTABLE CAR STAND SET

Turntables are NOT included

WA-204C Set of Four Car Stands. Includes right hand and left hand front stands and two rear stands. These stands offer those with limited space the opportunity to expand their business—through alignment work. Adjustable feet permit leveling on uneven floor surface.

Raise the vehicle with a frame contact hoist (or a jack), position the stands, lower the vehicle onto the turntables atop the stands (turntables not included with stands), and you're ready for business. Used with our turntables and alignment tools, the work is checked as accurately as can be done with permanent type equipment installations.

Front stands accept our Deluxe and Standard turntables, and have a built-on platform on which to stand while making over-the-fender adjustments. Rear stands have V-shaped tops to prevent car from rolling.

FEATURES AND SPECIFICATIONS

- Accepts Large or Small Turntables.
- Portable . . . Use in Any Shop Location.
- Rear Stand "V" Top Prevents Car Roll.
- Adjustable Height of about Three inches.
- Foot Platforms on Front Stands
- Rugged Welded Construction

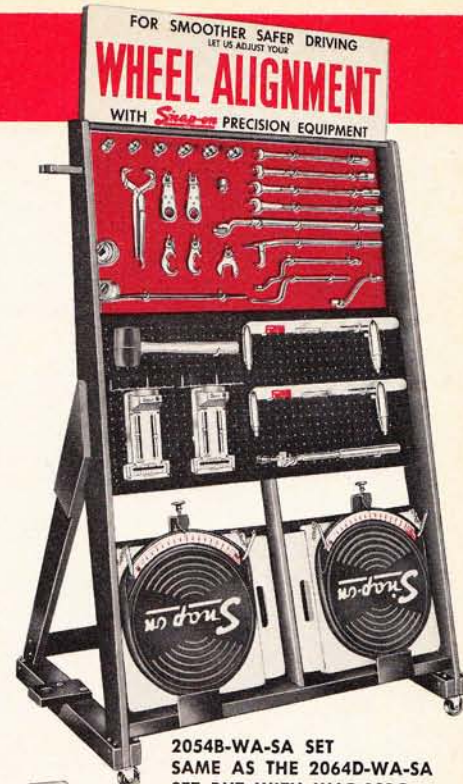
WA-130CR One Right Front Car Stand Only.
WA-130CL One Left Front Car Stand Only.
WA-131C One Rear Car Stand Only.
Front Stands: 35¾" long, 12½" wide, platform 14" x 15¼". Height adjusts from 9¼" x 12".
Rear Stands: 20" long, 12½" wide. Height adjusts from 13½" to 16¼".

Car Stand Alignment Sets

- 2065C-WA-SA Portable Alignment Set.** Includes:
2064D-WA-SA Alignment Set. Page 139.
WA-204C Car Stand Set. Above.
2066C-WA-SA Portable Front End Set. Includes:
2064D-WA-SA Alignment Set. Page 139.
WB-303A Wheel Balancing Set. Page 142.
WA-204C Car Stand Set. Above.



2064D-WA-SA SET—INCLUDES WAB-104B DISPLAY BOARD AND TOOLS ABOVE... WA-88 DRIVE-ON TOE GAUGE BELOW AND SS-312 CURB SIGN



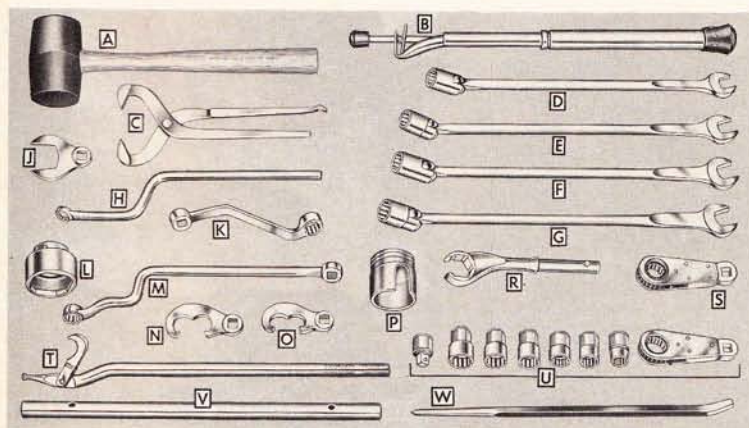
2054B-WA-SA SET
SAME AS THE 2064D-WA-SA
SET BUT WITH WAB-101C
DISPLAY BOARD



WA-88 DRIVE-ON TOE GAUGE

2023A-WA FRONT END HAND
TOOL SET SHOWN BELOW IS
INCLUDED IN ABOVE SETS

2023A-WA Alignment Hand Tool Set. Essential for fast, efficient front end work. Each tool designed to make adjustments quickly and profitably or to remove and replace worn or damaged parts that caused mis-alignment. Stiff or "frozen" tie rod sleeves are turned easily with tools shaped to grip the sleeves securely so that leverage can be applied. Special sockets and wrenches simplify tie rod end replacement, ball joint work, caster and camber adjustments, etc.



Stock No.	Description	Stock No.	Description
A BF-620A	Rubber Mallet	M S-9545	1 1/16" Hex. Torque Adapt.
B GA-73B	Brake Pedal Jack	N WA-12	Tie Rod Adj. Tool
C GCP-10	Grease Cap Tool	O WA-13	Tie Rod Adj. Tool
D OH-22	1 1/16" Comb. Flex. Wr.	P WA-14A	Tie Rod Adj. Tool
E OH-24	3/4" Comb. Flex. Wr.	R WA-15A	Ford Flare Nut Wr.
F OH-26	1 3/16" Comb. Flex. Wr.	S WA-24	Caster-Camber Wr.
G OH-28	7/8" Comb. Flex. Wr.	T WA-171B	Ford Caster-Camber Wr.
H S-6203	Chevy-Corvair Wr.	U WA-308	Caster-Camber Wr. Set
J S-8175	1 1/8" Crowfoot Wr.	V 18A	18" Tubular Handle
K S-8686A	3/4" Caster-Camber Wr.	W 1658	16" Pinch Bar
L S-9365A	Ball Joint Socket		



HEAVY DUTY CURB SIGN

SS-312 Curb Sign. Big — 64" max., height, 37" wide, four swinging panels each 32" x 12". Base is 50" long to provide ample stability in strong winds.

Attractive. Provides maximum visibility to advertise your services. Bright red, white and black baked-on enamel panels make this a real attention-getter. The four panels swing on spring loaded steel rods... one or more can be removed and the frame telescoped down to a lower height.

REPLACEMENT PANELS

SS-312-1 Wheel Alignment Panel, red and black on white.
SS-312-2 Wheel Balancing Panel, red and black on white.
SS-312-3 Electronic Tune-up Panel, black and white on red background.

UNIVERSAL ALIGNMENT SETS

2064D-WA-SA Deluxe Universal Alignment Set. Includes:

2023A-WA Alignment Hand Tool Set.
WA-88 Master Toe Gauge.
WA-64 Deluxe Turntable Set.
WA-402 Magnetic Gauge Set.
WA-78 Gauge Adaptors (2).
WAC-28 Torsion Gauge Set.
SS-312 Curb Sign.
WAB-104B Merchandising Display Stand: 64 3/4" high, 74 3/4" wide and 20" front to back.

2054B-WA-SA Universal Alignment Set. Same contents as above but with WAB-101C Compact Merchandising Display Stand, 77 3/4" high, 41" wide and 26 1/2" front to back.



Snap-on BASIC ALIGNMENT SET

PUTS YOU INTO THE WHEEL ALIGNMENT PROFIT PICTURE WITH MINIMUM INVESTMENT



2055D-WA-SA BASIC ALIGNMENT SET—INCLUDES WAB-101C DISPLAY BOARD AND TOOLS SHOWN ABOVE AND SS-312 CURB SIGN

Alignment Is A Most Profitable Operation

Now is the time to beat competition with the fastest growing service in the automotive industry and boost your own shop profits to new heights. The need for front end work is tremendous and offers the easiest and most profitable additional service that can supplement your present operations.

2055D-WA-SA BASIC ALIGNMENT SET — LOW COST EFFICIENCY

This set gives you all of the hand tools included in the 2023A-WA Set, page 139, together with a Toe-in Trammel Bar, Tire Scriber, Set of two Turntables and a set of two Torsion-Aire Height Gauges. The Turntables are 3" smaller in diameter than those in the sets listed on pages 138-139 and their load capacity permits use under vehicles with front end weight up to 5,000 lbs. They can be used on the floor or on the car stands or ramps shown on page 138.

A 2055D-WA-SA SET INCLUDES

- 2023A-WA Hand Tool Set (page 139).
- SS-312 Heavy Duty Four Panel Curb Sign
- WAC-2B Torsion-Aire Height Gauge (2 incl.)
- WA-62B Turntable Set
- WA-78 Gauge Adaptor (2 included)
- WA-151A Toe-in Trammel Bar
- WA-155 Tire Scriber
- WA-402 Set of Two Magnetic Gauges
- WAB-101C Merchandising Display Stand, 77 $\frac{3}{4}$ " high, 41" wide and 26 $\frac{1}{2}$ " front to back.

B BALL BEARING TURNTABLE SET

WA-62B Turntable Set. Consists of a right-hand and a left-hand turntable. These units are built to handle cars and light trucks with front end weightings up to 5,000 lbs. The ball bearing free-floating waffle top plates are eleven inches in diameter. Beveled edge of the plate helps to overcome any tendency to slide away from the wheel if car is driven onto the turntable while the vehicle is driven on or lowered on. Pointer sets close to the gauge and gauge markings are large and clear to give easily seen, accurate readings. Base and top plate are durable cast iron.

D TOE-IN TRAMMEL BAR

WA-151A Trammel Bar. 7 foot long 1 $\frac{3}{4}$ " square box type extruded aluminum bar is mounted on adjustable cast aluminum legs. Two sliding pointers clamp onto the bar and lock with large "T" screws. These pointers contact the scribed tire mark and can be adjusted to approximately hub height for greatest accuracy. Gauge has an indicator for direct reading $\frac{3}{4}$ " both ways from center of scale.

ALIGNMENT AND BALANCING SETS

2056D-WA-SA Basic Alignment and Car Stand Set. Includes:

- 2055D-WA-SA Basic Alignment Set. Above.
- WA-204C Car Stand Set. Page 138.

2057D-WA-SA Basic Alignment and Wheel Balancing Set. Includes:

- 2055D-WA-SA Basic Alignment Set. Above.
- WA-204C Car Stand Set. Page 138.
- WB-303A Balancing Set. Page 142.

C TORSION-AIRE HEIGHT GAUGE SET

WAC-2B Magnetic Torsion-Aire Height Level Gauge Set. Turns torsion bar adjustments into an easy operation. Powerful magnets grip suspension contact points quickly and securely. Precision leveling gauge attached to a 20-inch polished aluminum shaft is easily seen from either side, while adjustments are being made. Long, tapered arms with $\frac{1}{2}$ " diameter magnets are designed to fit the various models of Chrysler and General Motors products with torsion-air suspension. One magnet holder swivels and the adjustable height magnet holder slides to the correct position. Adjustments are made with the gauges in position. Set consists of two of the gauges.

WAC-1B Individual Torsion-Aire Gauge.

E TIRE SCRIBER

WA-155 Tire Scriber. Used to scribe a fine line around the circumference of the tires prior to checking toe-in. Chrome plated, heavy cast iron base aids in holding scriber in position while the wheel is revolved against the spring loaded needle arm. Spring holds the needle point against the tire even though it may be uneven or rough.



WALL BRACKET AND SIGNS

SS-313 Wall Bracket. Accepts any of three different signs (available individually). This is a strut-type bracket, 28" long, with a black enamel finish. Two cadmium plated "S" hooks are included for mounting a sign. Holes are provided in the bracket to facilitate mounting it to a building, pole, etc. There are three signs for the above SS-313 Bracket. Each is 24" wide, 18" high, made of 20-gauge steel, and is two-color.

- SS-313 Wall Bracket Only.
- SS-314 Wheel Balancing Sign Only.
- SS-315 Wheel Alignment Sign Only.
- SS-316 Tune-up Sign Only.

CASH IN ON PROFITABLE ALIGNMENT WORK



WITH **Snap-on** EQUIPMENT

A MAGNETIC CASTER-CAMBER-KING PIN ANGLE GAUGE

Improvements built into this SNAP-ON Magnetic Gauge help make alignment work easier and more accurate . . . permit you to read caster angle and king pin angle simultaneously — a real time saver.

Precision Ground Vials—Permit smooth bubble travel for greatest accuracy. They are curved so bubble sets quickly . . . recessed and cushioned to help prevent breakage. All vials are longer than on former models to allow expanded range markings with smaller degree fraction increments. Etched markings cannot rub off.

King Pin Vial—Is also used for caster correction and has leveling adjustment by means of a knurled screw . . . no need to turn the gauge on the hub to level it. This vial has caster correction marking 1-2-3 degrees both sides of zero. King pin angle markings cover 10 degrees in $\frac{1}{4}$ degree segments.

Caster Vial—Adjustment is made by means of a large knurled knob. Readings from -5 to +7 degrees are marked off in $\frac{1}{4}$ of a degree divisions.

WA-402 Magnetic Gauge Set. Consists of two of the above gauges.

WA-40 Magnetic Gauge. Note: This gauge is also available on special order with French, German, Italian or Spanish directions.

B WA-78 Adaptor. For use on aluminum or magnesium hubs, unmachined or small diameter hubs. $2\frac{1}{2}$ " diameter, $\frac{1}{2}$ " thick, center hole fits over spindle.

C BALL BEARING TURNTABLE SET

WA-64 Deluxe Heavy Duty Turntable Set. Designed for maximum speed and efficiency. This set consists of one right hand and one left hand turntable. Plates lock at zero while the car is positioned and lock automatically at the 20-degree angles. This automatic locking feature is a real time saver, as it eliminates the need to hold the wheel by hand while trying to read the gauge. It also allows the operator to check turning radius, unassisted.

Rugged and durable, this set can handle all cars, medium sized trucks and buses with front end weighs up to 5,000 lbs. Full floating action covered by full width 14" diameter top plates assures smooth, easy turning. Beveled edges on top plates and beveled aprons make it easy to drive onto, and helps overcome any tendency to slide forward away from the wheels.

Divisions on the gauge are large and clear and the pointer sets close to the gauge to give easily seen, accurate readings. Base and top plates are durable cast iron. Drive-on aprons are detachable to permit turntables to fit the SNAP-ON Air Lift Ramp, Pit-type Ramp and Car Stands.

Camber Vial—Provides readings from -2 to +2 in $\frac{1}{8}$ of a degree segments.

Memory Pointers—On the caster and camber vials can be set to the specifications for any particular car . . . saves time by eliminating repeated references to specifications.

Alnico Magnets—Permanent and powerful to grip hub flange tightly.

Centering Plunger—Fits into spindle center hole to position gauge accurately.

Aluminum Housing—These sturdily built yet lightweight units have a brushed aluminum finish.

Directions For Use—Are attached to the bottom of the gauge.

Note: Lock the brake with a pedal jack when checking Caster and King Pin angle.

D TURNTABLE BRIDGES

WA-56 Set of two Turntable Bridges. Placed between the turntables and the Master Toe Gauge they eliminate the height difference and prevent turntables skidding during drive-on. Each is 4" x 11 $\frac{1}{16}$ ".

E AIR OPERATED ALIGNMENT JACKS

GA-257 Air Jack. Recommended for use with the ramps shown on page 138. These jacks quickly raise a car or truck without effort, to release binding pressures on front wheels before shims or cams can be installed or removed, parts replaced or adjustments made. Honed cylinder and double cup oil reservoir insure years of dependable service . . . with each operation a thin film of oil from the reservoir lines the cylinder wall to prevent rusting.

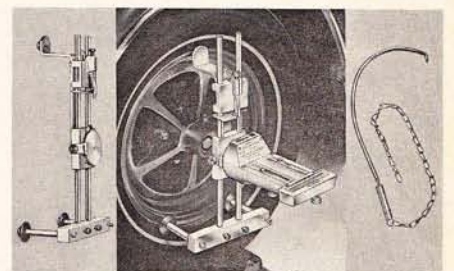
Each jack will lift 2400 lbs. on 100 lbs. of air line pressure or 3000 lbs. on 125 lbs. of air pressure. Included are 4 foot hose, tank valve and air release at end, for use with air chuck. Hose may be removed and air valve placed directly on the jack.

Jack has 5 $\frac{1}{2}$ " stroke. Height down is 10" . . . height up is 16" with additional screw adjustment to 19 $\frac{3}{4}$ ". Lift capacity is 3,000 lbs. at 125 lbs. jack air pressure.

MASTER TOE GAUGES

H WA-57A Master Toe Gauge. Locates those 7 out of 10 cars which need alignment . . . measures toe-in under actual driving conditions . . . shows amount of adjustment required. Just square the gauge against the front wheels, zero the needle and drive over the unit. If the needle moves off zero the car has an incorrect toe condition and needs alignment. Each mark shows a need for $\frac{1}{4}$ turn of the tie rod sleeve — no specification to check, no figuring, no guesswork. All this from just one pass over the gauge. Fast and easy? Certainly! But Profitable, too! This shows the need for alignment, and correcting toe-in is just the opener to a complete alignment and balancing job. Rugged and durable, constructed of heavy steel with aluminum thrust boards. Overall length is 85".

J WA-88 Master Toe Gauge. Has the same features as the model above but is 96" long to handle truck toe-in measurements. Thrust boards are aluminum on this model.



UNIVERSAL RIM ADAPTOR FOR MAGNETIC CASTER-CAMBER GAUGE

WA-702 Set of 2 Universal Wheel Rim Adaptors. Extends the use of your SNAP-ON magnetic caster-camber gauge to a wide range of wheels with inaccessible hubs such as new aluminum and magnesium wheels or steel wheels with small centers. The Olds Toronado and Cadillac front drive wheels can be serviced with these adaptors, also foreign and sports cars, wire wheels with spinner retaining nut, light trucks with enclosed caps and all four wheel drive trucks. The unit adjusts to any size wheel . . . legs have tapered end washers that grip behind the rim — and a locking device secures it to the wheel. Three chain-hooks are provided for use where the rim shape will not grip the tapered washers . . . the hooks grip around the tire instead.

WA-70 One Universal Wheel Rim Adaptor.

**BALANCE CAR AND LIGHT TRUCK WHEELS QUICKLY, EASILY
AND PROFITABLY WITH A**

Snap-on **WHEEL BALANCER**

This precise equipment tells you exactly
HOW MUCH WEIGHT TO ADD AND WHERE

WBK-2B Wheel Balancer Gives You Many Important Money Making Features

SPEED . . . With this SNAP-ON Wheel Balancer you can balance a wheel in three to five minutes.

ACCURACY . . . The sliding beam scale shows how much weight you should add and the switch-over arm shows just where it should be placed to put wheels in balance.

SIMPLICITY . . . Anyone can learn wheel balancing in a matter of minutes with the SNAP-ON Wheel Balancer. An easy-to-read instruction booklet, complete with illustrations, is included with each unit. No special training is required. A brief session with the instruction booklet will enable anyone to do fast, accurate and profitable wheel balancing.

LOW COST . . . At the low price of the complete Wheel Balancing Set WB-303B every repair shop or service station can afford this profit-making equipment.

PROFITABLE . . . Will pay for itself and pay you a profit by balancing wheels on 50 cars or less. Your labor charges alone on balancing will come close to paying for the equipment. Income from sale of weights will undoubtedly bring you a net profit from the operation.

Also Enables You To Look For Other Profitable Jobs

Every time you balance a set of wheels you uncover other possible repair jobs. Brake lining work — Scored brake drums — Defective wheel bearings — Bearing repacking — Leaky brake cylinders — Need for new tires — Front end alignment work.

WB-303A Wheel Balancing Set.
Includes the WBK-2B Balancer, WS-1A Spinner and the WWP-11 Wheel Weight Plier.

BELOW — the two small cones are used to balance wheels with brake drums attached.



ABOVE — The two large cones are used as shown to balance wheels without brake drums.

No Calculating — No Guess Work

Sliding Weight Beam tells you how much weight is needed . . . Switch Arm shows exactly where to place the weights.

Calibrated weight beam is marked off in ½ ounce increments and has individual weight scales for 13", 14", 15", 16" and 17" diam. wheels.

Four plated cones are furnished with the wheel balancer — two small cones for balancing wheels with the brake drum attached — two large cones for balancing wheels without drums.

The cones center the wheel around the balancer spindle which rotates in ball bearings resting on the plated upright posts. The wheel will turn and come to rest with the heavy area at the bottom.

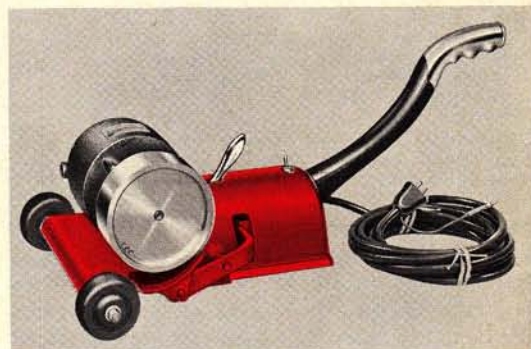
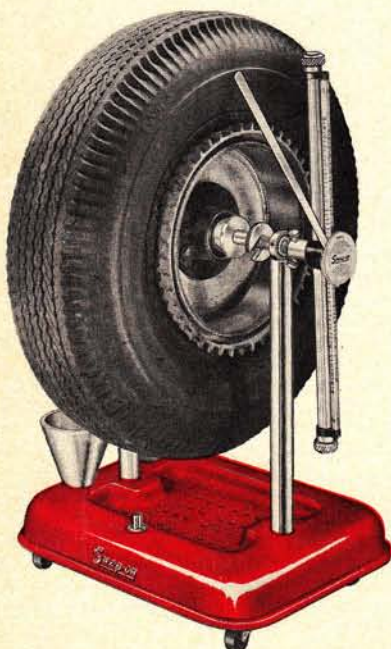
The redesigned shaft is turned down on both ends and permits using the beam assembly to be used on either side. The new WBK-2-25 Quick-Nut included speeds the job by ending the necessity of threading the nut all the way on and off each time a wheel is balanced . . . just slip it over the shaft thread, close to the cone, and tighten it.

When switching rear wheels to the front attach the wheel to front wheel drum and balance wheel and drum together.

When the sliding weight shows more than 2 ounces out of balance the weight to be added at each of the two points indicated by the switch arm should be divided and one half placed on the inside of the wheel. Using the SNAP-ON Balancer this is easily done and perfect balance obtained.

The heavy steel base holds your wheel weights and wheel weight pliers. Four rubber wheel swivel casters permit the Balancer to be rolled easily.

WBK-2-25 Quick-Nut. Available for owners of previous model Balancer.



Snap-on WHEEL SPINNER

Helps Sell Your Wheel Balancing Service

WS-1A Wheel Spinner. Performs an important part in the wheel balancing operation and enables you to prove to your customers, in a matter of minutes, that they need a wheel balancing job. It also demonstrates the remarkable improvement after the job is completed. This sturdy, easy to use unit will sell more balancing jobs for you than any expert salesman. A powerful unit, it can turn a car wheel to the equivalent speed of 100 mph or more . . . dramatically showing your customers how an unbalanced wheel can cause tremendous vibration which means quick wear on parts and tires and makes driving hazardous and tiring.

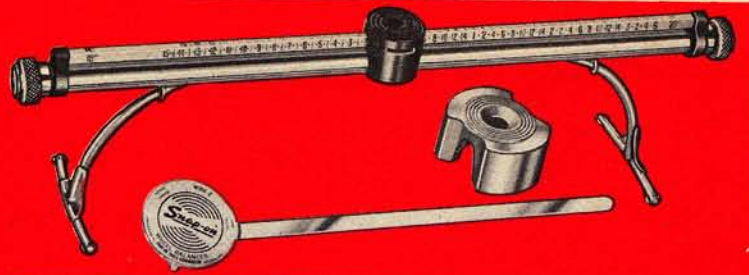
It's easy to use. After raising the wheel, simply roll the Spinner up to the wheel until the driving drum makes contact with the tire. When the wheel reaches a high speed, withdraw the Spinner. To stop the wheel, draw the Spinner up to the wheel, shut switch off and apply Spinner brake. Motor is 1½ h.p., 115 volt D.C. or A.C. up to 60 cycles. Draws 17 amps.

WS-1A-220 Wheel Spinner. 220 Volt Model. Available on special order only.

Snap-on[®]

ON THE CAR OR TRUCK

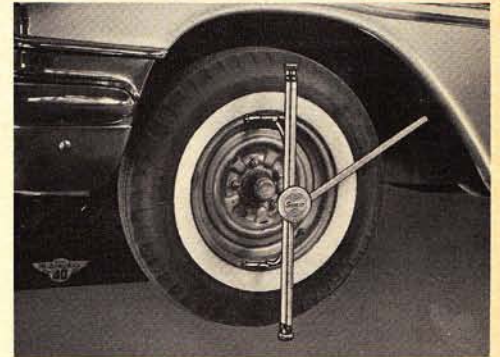
WHEEL BALANCER



WB-59A Wheel Balancer. Here is a sturdy, dependable wheel balancer for balancing wheels on the car or truck under the conditions in which they are run. It balances the entire rotating assembly of wheel, tire, hub and brake drum.

This wheel balancer fits all rims from 13" to 22" diameter and enables the operator to predetermine the amount of unbalance and to point out the exact location where the counterbalance weights are to be attached to the rim of any car, bus, or truck wheel assembly. This operation can be done with the least amount of time and with guaranteed accuracy.

Turning the end screws extends or retracts the arms equidistant from center to fit various rim sizes and hardened discs on the arms bite easily into the rim to hold the balancer in position. Sliding weight on the chrome plated balance bar shows exact weight required to achieve balance and swing arm shows exact points to apply the weights.



WHEEL WEIGHT METAL CABINET

KRD-401 Wheel Weight Cabinet. Designed to hold wheel weights from 1/4 ounce to 6 ounces. Lets you pick out the exact size you need quickly instead of wasting time digging through a box of mixed-up sizes. Compartments are large enough to hold fifty of either size weight . . . thirteen of the compartments are marked in sizes, 1/4, 1/2, 1, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 4 1/2, 5, 5 1/2, 6. The cabinet is built of heavy gauge steel and is welded to give rigidity and durability. It is finished in red enamel and has slots for hanging on a wall. It can also stand on the floor or bench. Height is 20 1/2", length 24 7/8", width 5 3/8".



WHEEL WEIGHTS

WW-84 Assortment of 925 Weights. 100 each of thirteen sizes 1/4 ounce, 50 each 3 1/2 to 4 1/2 ounce, 25 each 5 to 6 ounce. Weights are packed in boxes of 50 up to 3 1/2 ounce weight and 25 in larger sizes.

STANDARD WEIGHTS			THICK WEIGHTS		
Box No.	Weight Size	Qty.	Box No.	Weight Size	Qty.
WW-7025	1/4 oz.	50	WW-8350	3 1/2 oz.	50
WW-7050	1/2 oz.	50	WW-8400	4 oz.	25
WW-7100	1 oz.	50	WW-8450	4 1/2 oz.	25
WW-7150	1 1/2 oz.	50	WW-8500	5 oz.	25
WW-7200	2 oz.	50	WW-8550	5 1/2 oz.	25
WW-7250	2 1/2 oz.	50	WW-8600	6 oz.	25
WW-7300	3 oz.	50			

WALL AND CURB SIGNS

Are highly attractive, easy to read attention getters to advertise your wheel services. Identical front and back, made of 20 gauge steel with baked on, mirror-like finish in red, black and white. Construction is such that these signs will give years of normal service. Easy to keep clean. Their attractiveness, readability, quality and low cost will make them profitable for you.

SS-313 Wall Bracket. Strut type, 28" long, with a black enamel finish. Two plated hooks are included for hanging sign. Bracket has holes provided for mounting to a wall or pole, etc. Sign is not included.

SS-314 Wheel Balancing Sign only 24" wide, 18" high. For above bracket.

SS-312 Curb Sign. This unit comes complete with four panels as shown on page 140. If your operations do not include Wheel Alignment or Electronic Tune-up the stand can be telescoped, by removing two screws, to hold the Wheel Balancing sign as shown above, or to hold the head sign, plus one, two or all three of the other panels.

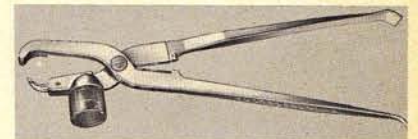


WHEEL WEIGHT PLIER AND HAMMER TOOL

WW-11 Wheel Weight Plier. Riveted joint construction, with set of cutters below joint for trimming weights. Plastic hammer tip minimizes changing spring clip tension of weights. Slender curved point of head slips into weight slot — it is replaceable. The heavier hook slips under weight, applies pressure for removal. One handle has offset wedge for removing hub cap, the other has pointed end for removing stones from tread. 11 7/8" long.

WWP-11-3 Replaceable Hook.

WWP-11-4 Plastic Hammer Tip.



BALANCER ADAPTOR FOR RENAULT WHEELS

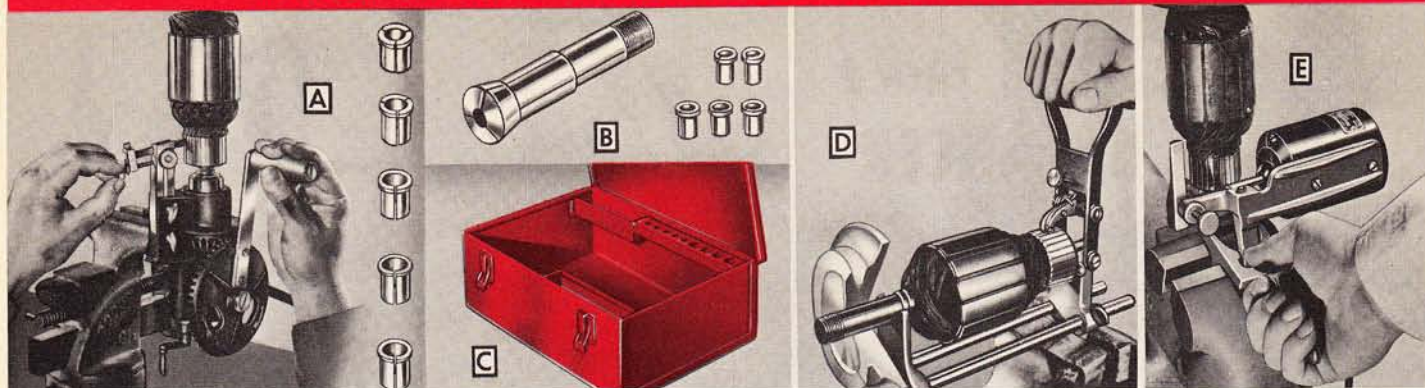
WBK-2-8SA Renault Adaptor Set. A new Adaptor Plate, complete with a special shaft assembly, holds the Renault wheel firmly, yet permits the wheel to rotate freely on the WBK-2B Wheel Balancer during the balancing operation.

Three pins on the Adaptor Plate fit the wheel lug holes on the Renault wheel. The two-piece shaft threads together to hold the adaptor plate and wheel. The entire assembly of wheel, adaptor plate and shaft is then used in the usual manner with the WBK-2B, Wheel Balancer.

LARGE CONE SET FOR FORD AND DODGE TRUCK WHEELS

WBK-2-10L Set of two large cones, designed for use with our WBK-2B Wheel Balancer, will enable you to balance wheels of Ford and Dodge Trucks. The large openings on Ford and Dodge truck wheels make it necessary to use these larger cones in order to hold the wheels perfectly centered around the balancer spindle. Addition of this set of large wheel cones to your WBK-2B equipment will permit balancing all types of truck wheels.

MONEY MAKING ARMATURE RECONDITIONING TOOLS



Commutator Turning Tool. This well engineered, sturdy machine turns out work equal to that done on expensive lathes. It handles armatures with .393", $\frac{1}{2}$ ", $\frac{9}{16}$ ", .591", $\frac{3}{4}$ ", and $\frac{1}{2}$ " diam. shafts... does not require special centerless chucks... does the job faster than a lathe — without removing back plates. Amount of cut is controlled to the finest shaving. Bottom handle raises the armature to starting position and the armature lowers automatically as the cut is made. After commutator is turned down, use a Mica Undercutter to finish the job.

A AT-2X-B Commutator Turning Tool Set including Turning Tool, 5 bushings (below), and cutter blade complete in KRA-108A metal box.

AT-2X Set. Above set without the box.

AT-2-61.... $\frac{1}{2}$ " I.D. **AT-2-64**.... .591" I.D.

AT-2-62.... $\frac{9}{16}$ " I.D. **AT-2-65**.... .393" I.D.

AT-2-63.... $\frac{3}{4}$ " I.D.

AT-2-16.... Armature Tool Steel Cutter Blade

OPTIONAL PARTS (Not Shown)

AT-2-56 Long Cutter Bar Assembly. For use on armatures with long shafts and where the regular cutter bar is too short.

Special units for Chrysler starter motors. Reconditioning the starter motor on late model Chrysler products requires this longer cutter bar and special bushing.

AT-2-57 Cutter Bar. 5" long.

AT-2-66 Bushing. .469" inside diameter.

B Small Collet and Bushings. Adapt the Armature Reconditioner to fractional power motors used in vacuum cleaners, fans, sewing machines, etc.

AT-2-70... $\frac{3}{8}$ " Collet

AT-2-73... .281" I.D.

AT-2-71... $\frac{5}{16}$ " I.D.

AT-2-74... .265" I.D.

AT-2-72... .296" I.D.

AT-2-75... .250" I.D.

AT-2-76 Volkswagen Armature Bushing. (Not shown.) Adapts the AT-2X Armature Tool to the armatures of Volkswagen generators and starter motors.

C KRA-108A Metal Box. Designed especially to hold the armature reconditioning tools, collets, bushings, etc. $13\frac{1}{8}$ " x $9\frac{3}{8}$ " x $4\frac{5}{8}$ " high. Red enamel finish. Metal handle on top.

D UC-6 Mica Undercutter. Designed to eliminate the packing of copper chips in the corners. Reverse teeth in the cutter do the actual cutting on the return stroke. This reverse action feature also makes the teeth of the cutter blade self-cleaning. Simply clamp the base of the undercutter in a vise and attach commutator. Handles a wide range of commutator sizes without frequent parallel adjustments. The adjustable "V" base enables you to handle armatures without removing the pulley or end bell. One each of three blades listed are included.

UC-6-015.... .015" Thickness Blade (Included)

UC-6-020.... .020" Thickness Blade (Included)

UC-6-025.... .025" Thickness Blade (Included)

UC-6-010.... .010" Blade (Not Included)

E AT-1 Electric Mica Undercutter is designed to perform faster, easier and much more accurately than is possible with manually operated units. Easily portable... Weighs less than five pounds so that it can be moved from one location in the shop to another with ease. Unique design permits attachment to any vise and does not require attachment to a lathe, etc., for use.

Highly accurate... Depth of cut is easily adjusted by means of the adjusting screw lock nut located on the frame of the undercutter. All grooves can be cut to the same depth, resulting in better armature performance and longer brush life. The circular blade turns very rapidly and, since all grooves are cut to the same depth, a very clean job with no copper flaring is possible. This is especially important as flaring or grit could cause short circuits after armature has been reinstalled.

Pulleys, end plate or gears need not be removed before undercutting. This is a real time and temper saver which helps minimize time required to do the job. The universal V-Block is designed to handle all popular armature shafts. Adjusts easily to various size openings by means of two knurled nuts on the frame of the tool. The universal motor incorporated in this tool operates on 110 volt, 25-75 cycle, A.C. or D.C. current. Net weight of entire unit is four pounds, twelve ounces.

AT-1-14A .010" Blade **AT-1-14C** .020" Blade

AT-1-14B .015" Blade **AT-1-14D** .025" Blade

AT-1-220 220 volt model available on special order.

Snap-on BATTERY TESTERS



AUTOMATIC BATTERY CELL TESTER

PERFORMS ALL TESTS ON 6 AND 12 VOLT BATTERIES

A MT-340A Battery Tester. Shows capacity and condition of the battery without disturbing or puncturing the insulation.

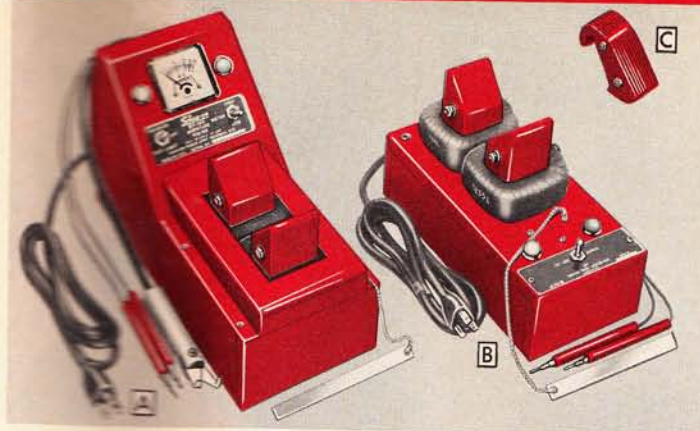
Performs three important tests: 1. Open Circuit Test shows battery condition and no-load voltage; 2. Load Test shows if battery can deliver sufficient power for 30 seconds which is measure of capacity; 3. Regulator Test performed with engine running shows operation of regulator.

Five-position heavy-duty breaker type switch will stay in the "6 volt," "off" and "12-volt" positions, but has to be held in the respective "load" positions. This prevents accidental overloading. Red pilot light glows when tester is in open circuit. 43" color-coded wires have insulated handle clips.

HYDROMETER — THERMOMETER

B BB-4A Hydrometer-Thermometer. Has float gauge printed in three colors with "Recharge," "Fair" and "Good" markings to indicate exact battery condition. Range of 1,060 to 1,320 covers all test conditions. Recessed thermometer with range of 0 to 160 degrees shows temperature and Specific Gravity corrections. Six ounce capacity red rubber filler bulb has straight stem and is $10\frac{1}{2}$ " overall.

Snap-on ARMATURE GROWLERS HAVE BUILT-IN QUALITY



HIGH QUALITY GROWLER

B MT-323 Armature Growler. Modestly priced, this growler provides many features which make this a highly desirable unit. The rugged construction will provide long, trouble-free service. Coils, laminations and transformer of this Growler are designed for heavy duty operation. Low voltage test leads, 3-pronged plug and grounded case provide high safety factor for the operator. An indicating light is provided for continuity tests. Pilot light shows when unit is "on." A test blade is also included, and is chained to the housing. Controls are provided by the three-way switch. The case has a red, baked-on enamel finish, and is equipped with rubber feet. Operates on 117 Volt, 60 cycle A.C. single phase.

220 VOLT MODEL

MT-323-220 Growler. Same as above but for 220 volt, 60 cycle A.C. Special order only.

EACH GROWLER HAS THIS FEATURE

All Growlers listed have two individual coils in one magnetic circuit. Each coil consists of two isolated windings, one of which is for test prods and test light. This isolation is important since it removes test prods from the 117 V. circuit to eliminate shock hazard. The two dual coils provide a more efficient magnetic field for unit to be tested.

A DELUXE-TYPE GROWLER

A MT-326 Armature Growler, 117 volt 60 cycle, A.C. Raised panel at rear places meter in easier-to-read position. Keeps switches handy. Pole pieces are at front. Armature, with or without fan assembly can be placed on pole pieces. Two heavy duty toggle switches, easy-to-read 2-scale meter and red and green pilot lights are all conveniently grouped.

Switch at left provides 3 positions: Growler, Off and Test Light. Growler position is used in conjunction with growler tests including the use of hand piece. Does not overheat even if switch is left on without armature in pole shoes.

Switch at right selects amperage range. This is a two position switch, "High" actuating the high scale of the meter for testing large armatures, and "Low" for small armatures. The two-scale meter is calibrated from 0 to 5 amps. for testing small armatures, and 0 to 25 amps. for large armatures. Balanced needle movement may be zeroed by means of screw in plastic cover.

The red pilot operates when either Growler or Test Light switch is on — acts as warning, prevents needless waste of current.

Green test light used in conjunction with continuity testing, operates when continuity or a closed circuit exists. Test Prods have insulated handles, operate at mere 24 volts, eliminate shock hazard and have "fixed" rather than "spring-loaded" points.

Steel Blade furnished is used for short circuit tests, and the adjustable Hand Piece is used with meter in making bar-to-bar current tests. Points on hand piece can be spread for multiple bar testing. Finished in red baked-on enamel. Case has compartment to store test prods, hand piece and blade.

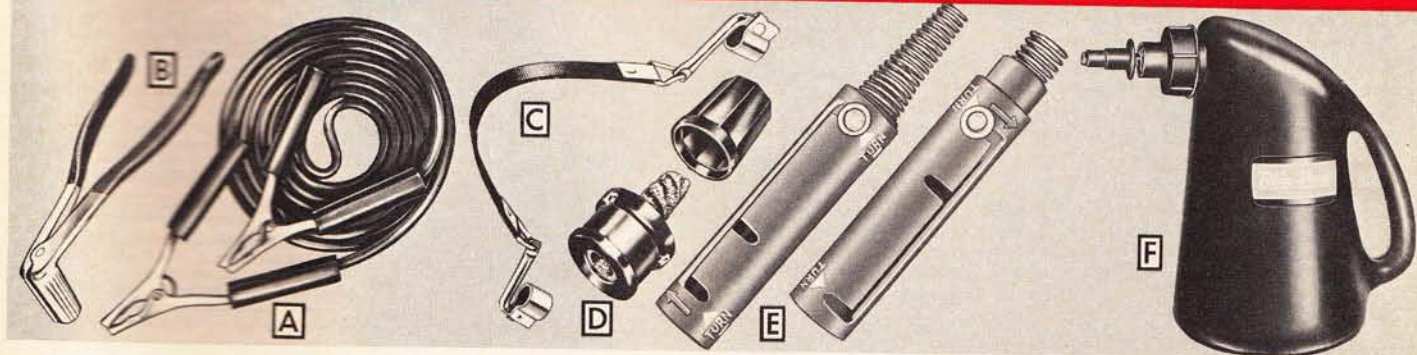
220 VOLT MODEL

MT-326-220 Growler. Same as above but 220 volt 60 cycle A.C. Available on special order.

ARMATURE GROWLER ADAPTOR

C MT-329 Armature Growler Adaptor. For testing small armatures such as on electric drills, heaters, etc. Adaptor is hooked over the pole piece on standard growler thus making the bridge smaller. 11 sets of laminations are separated by insulated bakelite washer. Ventilated construction. 3 3/4" long, 2 1/4" wide.

TO SERVICE BATTERIES PROPERLY YOU NEED THESE TOOLS



A Heavy Duty Battery Booster Cables. High efficiency No. 2 and No. 4 gauge flexible welding cable permits greater current capacity with less voltage drop than cables made of 6 or 8 gauge material and over a greater cable length. This is very important in cold weather, when all possible power is needed to turn the engine and fire the spark plugs. Clamps have copper inserts that contact the terminal posts and minimize power loss. Flexible at 10-20 degrees below zero the insulation resists cracking.

MT-341 Set. Two 20-foot No. 2 gauge cables. Has a voltage drop of only 1.4 volts at 200 amperes.

MT-342 Set. Two 12-foot No. 4 gauge cables. Has a voltage drop of only 1.36 volts at 200 amperes.

B GA-118B Battery Terminal Spreader with 1 1/8" offset serrated jaws to spread and clean terminal clamps in one operation without distorting the clamp. The bowed handles fit your hand to provide a firm grip.

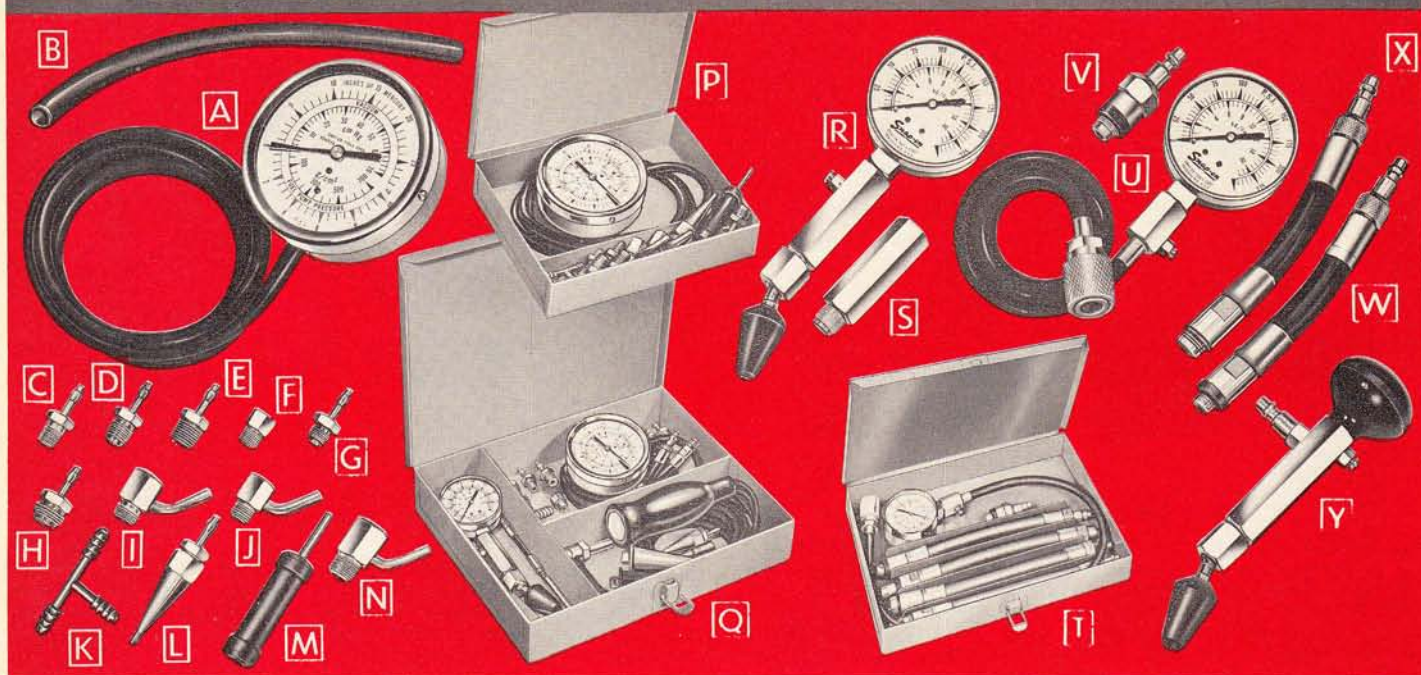
C GA-154 Battery Carrier. The clamps slip over the battery terminals and, as lifting pressure is applied, exert pressure on the terminals to hold the battery securely. Clamps swivel to conform to various terminal locations. Carrier is 18" long.

D BTC-3 Battery Terminal Brush. Plastic case is highly resistant to battery acids. Two brushes are provided, one female for cleaning terminals, the other is male for cleaning clamps. Brushes are of stiff wire so spaced to clean quickly and thoroughly.

E BTC-6 Battery Terminal Cleaner. Quickly cleans battery posts and cable terminal clamps. Sharp stainless steel spring-wire cutters shave off corrosion and deposits efficiently and clean easily under hot water. Cutters hold their edges many jobs longer than brush types and fit both positive and negative sizes without adjustment. Bright red polypropylene plastic holder is 5 1/2" long, 1 1/4" diameter. The cutters slide and lock into working position. Arrows point the proper turning direction for cleaning.

F GA-207 Battery Filler. Automatically fills battery to correct level without overflowing. Simply insert the spout in the filler hole. Eliminates checking for correct level and refilling water bulb. Black polyethylene bottle holds 2 1/4 quarts and is impervious to common acids, withstands extreme temperatures, knocks and falls.

Snap-on TOOLS THAT WILL HELP YOU SHORTEN TUNE-UP TIME



Snap-on VACUUM GAUGE

A MT-14E Vacuum and Fuel Pump Gauge. A restriction valve controls and minimizes the indicator vibrations and assures more exact readings. Each gauge comes equipped with four feet of hose. Complete instructions are also included.

Vacuum Scale: Shows up to 28 inches of mercury in one and five inch increments and metric calibrations up to 700 millimeters of hydrargyrum in twenty and one-hundred mm increments.

Fuel Pump Pressure Scale: Shows up to 10 p.s.i. in half and one p.s.i. increments and in metric calibrations up to 700 grams per square centimeter in 50 g/cm² increments.

VACUUM GAUGE ADAPTORS

These adaptors are needed to attach the MT-14E Vacuum Gauge hose for various carburetor, fuel pump and exhaust emission test connections.

- B MT-425-12** 6" adaptor hose
- C MT-12-10** 1/8" pipe thread adaptor
- D MT-12-12** 1/2"-20 thread adaptor
- E MT-14-6** 1/4" x 18 thread adaptor
- F MT-14-7** 1/8" pipe, 1/16"-24 adaptor
- G MT-14-13** 1/16"-24 thread adaptor
- H MT-14-14** 5/8"-18 thread adaptor
- I MT-14-8** 1/2"-20 thread adaptor
- J MT-14-9** 1/16"-24 thread adaptor
- K MT-14-16** "T" adaptor
- L MT-14-11** hose coupling
- M MT-14-12A** tube connector
- N MT-14-15** 5/8"-18 thread adaptor

VACUUM AND FUEL PUMP GAUGE SETS

P MT-311D-B Set consists of the MT-14E Vacuum Gauge described above plus the thirteen adaptors are described above, in KRA-128 metal box.

KRA-128 Metal Box. Box is 8" wide, 6 1/2" front to back and 1 3/4" deep with partitions to separate gauge from adaptors. Button type latch secures hinged cover.

COMPRESSION GAUGE ADAPTOR

S MT-24D8 Compression Gauge Adaptor. This extension fits on the MT-24H or older model gauges so they can be used on the Chrysler line of V-8 engines with deep set spark plug openings. The cone assembly of the gauge is removed and the adaptor threaded onto the end of the shaft. Replacing the cone assembly leaves the gauge ready for use. When installed, the release valve is 6 3/4" from the cone tip.

Snap-on ENGINE TUNE-UP SET

Q MT-318F-B Engine Tune-Up Set. With this set any mechanic can quickly tell "What's" wrong with a motor and "where" ... can shorten tune-up time and turn out easy-starting, sweet-running jobs that will satisfy your customers and bring more business. And ... each tool is a dependable precision instrument — gauges are designed like watches, with bushed bearings and ultra-sensitive spring movements.

The set consists of the following twenty-two units: MT-24H Compression Gauge, MT-24D8 Adaptor, MT-14E Vacuum Gauge with thirteen adaptors listed to left, MT-51 Timing Light, MT-16 Adaptor Jack, MT-26-13A fourteen mm., and MT-26-14A eighteen mm. Cylinder Pressure Adaptors and the MT-19A Flexible Spark Plug Adaptor, complete in a sturdy KRA-125 metal case. Case has our standard red enamel finish.

MT-318F Same Set as above but without case.

Snap-on COMPRESSION GAUGE

R MT-24H Compression Gauge. Dial registers from zero to 250 p.s.i., in five p.s.i. increments and in metric calibrations from zero to 17 kg./cm² in one half kg./cm² increments ... holds the highest compression reading exactly until the release valve button is pressed. The gauge may thus be removed from the spark plug hole for easier reading. Dial cover is easily replaced if damaged.

A big improvement over previous models is the use of a new check valve. This valve is quite similar to an inner tube valve but do not use an ordinary valve as a replacement as it will cause inaccurate readings. A spare valve is included in the service kit. The cone tip is made of neoprene and is not affected by grease or gasoline ... swivels to reach and fit all spark plug holes. Service kit is included.

MT-24DR Service Kit included with each of the above gauges consists of the following parts. Cone tip, valve, and sealing ring in draw-string bag. Note: this kit is for MT-24H compression gauge and previous models.

UNIVERSAL COMPRESSION GAUGE ADAPTOR

Y MT-26-9 Universal Cone-type Adaptor for use with MT-26-D Compression Gauge when taking readings on low compression engines. Has 2-piece hexagon housing with neoprene cone shaped for easy insertion and swivel joint to use on any spark plug hole. Black plastic knob with firm grip enables adaptor to be held firmly in spark plug well. Release valve button releases air after test so needle zeros. Gauge hose is quickly and easily connected to side outlet.

Snap-on COMPRESSION GAUGE SET

T MT-308F-B Compression Gauge Set consisting of MT-26E Compression Gauge, MT-26-11A, MT-26-6A, MT-26-12B and MT-26-16A Adaptors, in KRA-124A Box.

U MT-26E Compression Gauge. This 25" flexible hose type compression gauge and adaptors are a necessity when working on late model cars where there is a lack of clearance. The 24" hose is fitted with a quick-coupler for fast connect and disconnect of adaptors, giving you access to almost any engine. Dial registers from 0 to 250 p.s.i., in five lb. divisions and in metric calibrations from 0-17 kg/cm², in one half kilogram increments. A push button releases all air after test. The gauge comes complete with the MT-26-10A, 14 mm. x 1.25 universal adaptor with 8" hose.

V MT-26-6A 14 mm. Short Adaptor for Chevy MT-26-11A 18 mm. Adaptor with 8" flexible hose for use on Ford products with 18 mm. spark plug holes.

MT-26-12B 14 mm. Adaptor for use on 1959-64 Chevrolet cars and trucks with the large 348 cubic inch engine. Very similar to the MT-26-6A adaptor in appearance.

MT-26-16B 14 mm. Adaptor. Designed for use on 1967 Buicks.

KRA-124A Metal Box, 12" x 7 1/2" x 1 1/2" deep. Has a partition to separate gauge from adaptors. Will also hold the MT-26-9 Universal Adaptor along with the MT-308F-B Set.

CYLINDER PRESSURE TEST ADAPTORS

Hold the valve up in position while the spring is replaced or to check for leaky valves or gaskets, bad rings, or cracked blocks. Screw the adaptor into the spark plug hole, attach the air hose and inject air pressure into the cylinder to keep the valve seated.

While similar in appearance to our MT-26-11-A Compression Gauge Adaptors, these test adaptors have no check valves and cannot be used with the Compression Gauge. Each adaptor is 7" long, the center portion is flexible.

W MT-26-13A 14 mm. Cylinder Pressure Adaptor.

X MT-26-14A 18 mm. Cylinder Pressure Adaptor.

MT-26-15A 14 mm. Cylinder Pressure Adaptor. For Chevy 348 cubic inch and GMC V-6 and V-8 engines. Similar to MT-26-13A but has longer threaded section.

RUBBER GLOVE AIDS TESTING

GA-196 Rubber Glove. Thin, flexible and highly shock resistant. Permits direct contact with secondary voltage leads or terminals without getting a high tension jolt. Lets you remove leads faster than with insulated tongs. Hot manifolds or sharp objects can easily damage the glove, and we recommend you use a cotton glove over the rubber glove.

LOCATE TROUBLES IN A HURRY WITH THESE DEPENDABLE TOOLS



Snap-on TIMING LIGHT

A MT-51 Timing Light. This unit may be used on any volt system. The new coil-type neon tube provides a brighter light than many units. The tube is housed in a streamlined, soft rubber case molded to hold a plastic lens. The lens is break-resistant and the rubber case resists shock damage, provides good insulation and is easily held.

The unit is 6" long with timing light leads four feet 3 inches long. Lead end clamps are fitted with rubber boots. Small size of the unit makes it easy to get down to the timing marks.

POWER TIMING LIGHTS

B MT-215B Power Timing Light. Now time engines the quick, easy way with this SNAP-ON 6-12 volt timing light. No more burned hands from reaching for plugs under hot manifolds. An improved method of triggering the flash tube permits the use of a capacitive clip on the spark plug lead that senses the impulses through insulated wires without puncturing the lead... prevents any damage to carbon-Nylon high tension wires.

Another advantage: You can test hard-to-get-at plugs in seconds right from the top of the engine. Just clip the light onto each plug wire in turn... if the plug is fouled the light will not flash.

The light pattern is concentrated to a high degree of brightness regardless of engine speed or whether 6 or 12 volt system. The gases within the neon tube are activated by the glow from a small bulb when the trigger is depressed. Less voltage is required and a more efficient flash results.

The pistol-grip handle has a convenient push-button switch. Flexible leads leave through a rubber strain reliever, out of the way of the hands. High impact, glossy red plastic case insulates against shock, will not break or chip if dropped and is not harmed by grease, gasoline, or oil. Parts are replaceable.

MT-215 Power Timing Light. Housed in the same case as the MT-215B above but has different circuitry. This model does not have the capacitive type clip shown above but has the two battery clips and a smaller clip for attaching to a spark plug or a spark plug adaptor jack. Extremely efficient electrical circuit provides a high degree of brightness and concentrated light pattern regardless of engine speed.

SPARK PLUG ADAPTOR

C MT-319 Spark Plug Adaptor. Permits attachment of our Timing Lights or Anal-O-Scope to various foreign cars such as Volkswagen, Karmen Ghia, and Porsche. The adaptor clips onto the spark plug, the plug lead is pressed onto the threaded end and the test instrument is attached to the center.

TIMING LIGHT ADAPTOR JACK

D MT-16 Timing Light Adaptor Jack. Many cars have completely shielded ignition leads making it impossible to connect the timing light lead to the spark plug. This brass adaptor plugs into the distributor cap in the No. 1 spark plug lead opening and the lead plugs into it—providing sufficient contact area for clipping on the timing light. 2" long.

FLEXIBLE SPARK PLUG ADAPTOR

E MT-19A. Long enough so that shorting tests can be made (or a timing light clip attached) without altering position of the spark plug insulation boot. The metal female end is shaped to fit snugly over plug. Rubber covered section is very flexible. 4¼" long. **MT-198 Set** of eight adaptors.

ANAL-O-SCOPE ADAPTORS

Designed to eliminate triggering problems when testing Volkswagens and other vehicles with our Anal-O-Scope. Such problems may be caused by low cylinder compression, closed spark plug gap, carbonized plugs, or induced voltage.

By introducing a spark gap into the high tension lead, these adaptors overcome such problems. Simply use the adaptor in series with the high tension lead at the distributor or the spark plug.

Double or intermittent timing light flashing is also solved with these adaptors.

F MT-40 Spark Plug Adaptor. One end fits over the spark plug, the other end accepts the lead. Center portion is insulated and brass ends allow attachment of trigger lead. 3½" long.

G MT-41 Distributor Adaptor. Has center insulated portion. One brass end fits into distributor, the other end receives the high tension spark lead and provides for attachment of trigger lead. 2¾" long.

FIELD RHEOSTAT

H MT-316B Field Rheostat. Small, easy to use with any 6 or 12 volt regulator tester that does not have built-in rheostat. Control panel with continuous adjustment from 0 to 75 ohms with separate setting for full open circuit. Has flexible 6 foot lead with alligator clips and boots. Uses an 8 ampere fuse.

Snap-on IGNITION CONTROLLER

J MT-345A Ignition Controller. 6 or 12 volt systems. Starts an engine without ignition keys; permits intermittent or constant turn-over of engine from outside of car (without starting if desired); checks for broken circuits or blown fuses; use to bypass switches; use as a direct or intermittent switch; use to test and adjust horns; for finding voltage drop in charging circuit; for grounding out armature.

Case is 2" x 3½" x 3½". Starter button controls heavy duty, momentary contact type switch substituting for any switch on the auto. Starter will not crank unless button is pressed—it is spring loaded to prevent accidental operation. The indicating light provides visual means of checking distributor point operation. The switch has "START", "OFF", and "TEST" positions. "START" is same as ignition switch on car. "OFF" is used for cranking operation without starting the car. "TEST" is used in examining the opening and closing sequence of distributor points, checking continuity, using light as indicator, checking operation of any switch, etc. Has three flexible 6-foot leads, and color coded heavy duty clamps. Automatic circuit breaker protects controller.

CT-4-5 Replacement Indicator Bulb.

¼ OHM RESISTOR

K MT-314 ¼ Ohm Resistor for use with our A.V.R. Testers and Regulator Testers. Used to simulate a fully charged battery during the regulator test. Red enamel case, 2¼" x 2½" x 1½" with 2 highly flexible 15" leads for ample "reach" for quick installation. Alligator clips have insulated boots.

STARTER CURRENT INDICATOR

L MT-111 600 Amp Inductive Ammeter. Has ample capacity for testing starters on passenger cars and most 12 volt trucks. It is easy to use since no direct connections are necessary. To get an accurate reading the meter is held directly over the wire which should fit snugly into the slot at the back of the meter. The dial is calibrated from 0 to 600 amps on both sides of zero in 50 amp increments, permitting readings regardless of the cable polarity. Instructions are included.

GENERATOR-ALTERNATOR AMMETER

M MT-112 100 Amp Inductive Ammeter. Tests the output of most passenger car and light truck generators and alternators. The dial is calibrated from 0 to 100 amps on both sides of zero in 10 amp increments. Permits readings regardless of the direction of the current flow. In use the metal channel on the rear of the meter is placed over the output wire. Since the meter is affected by magnetism it should not be used too close to the Alternator or generator. Instructions are included.

**MT-540C AVR
TESTER MOUNTED
ON KRA-416C
METER STAND**



Snap-on AVR TESTER WITH HEAVY DUTY CAPACITY

MT-540C AVR TESTER . . . ONE OF THE BEST PROFIT MAKING TESTERS YOU CAN OWN

Here's a tune-up man's right arm. This versatile SNAP-ON AVR Tester is six instruments in one—a Field Rheostat, AC Voltmeter, DC Voltmeter, DC Ammeter, Carbon Pile Load and Battery Tester. This makes the AVR a complete tester for alternators, generators, regulators and batteries.

Dozens of new features make it the finest AVR you can own. It's even got earphones so you can accurately check upper and lower point voltage settings on double contact regulators.

This new AVR Tester handles 6, 12, 24, 30 and 32 volt systems. Use it on cars, trucks, buses, tractors—both U.S. and foreign. Built for heavy use, it's SNAP-ON quality throughout. Readings are pin point accurate and the scales are easy to read. Complete instruction manual makes operation simple.

Features of the SNAP-ON MT-540C AVR Tester

- Large, easy-to-read 6" meter dials.
- Clear plastic meter face covers.
- Precision instruments are calibrated to extreme accuracy.
- Variable carbon pile provides positive control over the charging system at all times—prevents damaging electrical components while making tests.
- Field current draw reading is made by simply flipping a switch—no need to change any connectors.
- Positive battery protection is given by a red warning light which indicates when the carbon pile is on.
- Extra long, color-coded leads lock in with a

quarter turn and prevent the possibility of an exposed live terminal.

- A sensitive earphone is provided and plugs into the tester for accurately checking the upper and lower point setting on double contact regulators.
- Large control knobs are clearly marked and easy to turn.
- Heavy gauge steel case has durable red enamel finish and sturdy carrying handle.
- Instrument panels in contrasting dull black and brushed aluminum.
- Clean, modern functional design.
- Simplified test and hook-ups are explained in detailed, easily understood instruction manual.

Earn big profits in batteries, alternators, generator regulators, starter systems and electrical accessories. Replace or repair them—this instrument pinpoints the trouble quickly. This compact, portable unit can be used as a battery tester, starter tester, alternator tester or generator-regulator tester. It can also be used to check the current draw of any electrical component as well as voltage drop across any switch or wire. Its field rheostat provides accurate control over alternator or generator output with fused rheostat leads to protect the circuit.

Tests Which Can Be Performed

- Battery capacity
- Starter current draw
- Starting system resistance
- Alternator output
- Generator output
- Voltage regulator setting
- Charging system resistance
- Current regulator setting
- Cutout opening and closing
- Alternator field current
- Generator field current
- Field circuit resistance
- Voltmeter tests
- Ammeter tests
- Shorted or open diodes

OPTIONAL ACCESSORIES FOR THE AVR TESTER

LEADS AND ADAPTORS

MT-356A Terminal Adaptor Set. Use with the SNAP-ON AVR Tester to attach test leads to alternator system components, including regulators connected by molded plugs. Set includes one jumper, one double male and four male-female adaptors. Can also be used with our MT-701 and MT-702 page 150.

MT-352 Ford Alternator-Regulator Adaptor.

MT-353 G.M. Delco-Remy Delcotron Adaptor.

MT-359 Set. Includes the MT-356A, MT-352 and MT-353 Adaptors above.

MT-548 Set of 15 Foot Leads. Use with MT-540C AVR Tester for making battery, ammeter and voltmeter tests on trucks and buses, including diesels. Provides plenty of working length.

MT-7 Vinyl Cover for MT-540C AVR Tester.

Note: See Special Instrument Stand—page 153.

AMPERE SHUNT

MT-541C Ampere Shunt. For use with the MT-540C AVR Tester when checking the current flow from 600 to 1200 amperes. It is needed when readings are taken in series with the starter on heavy duty electrical equipment used in diesels, buses and some trucks. The unit has a phone type plug for connection to the AVR Tester listed above. It is a standard 50 M.V. 1200 ampere external shunt and may be used with any 50 M.V. meter. It is not included with the MT-540C Tester and must be ordered separately.



AVR TESTER SPECIFICATIONS Deluxe Model MT-540C (Above)

Size: 16" wide, 12 3/8" high, 17" deep.

Ammeter Ranges: Minus 10 to + 120 amp. (1 amp. div.)

Minus 1 to + 12 amp. (.1 amp. div.)

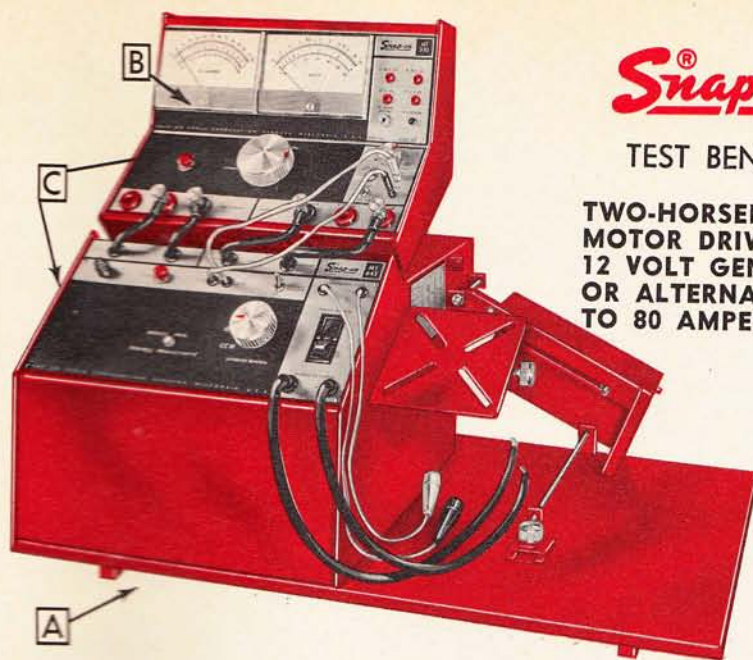
Minus 50 to + 600 amp. (5 amp. div.)

With optional shunt minus 100 to + 1200

Voltmeter Ranges: 0-4 (.02 V. div.), 0-20 (.1 V. div.), 0-60 (.5 V. div.)

Both D.C. and A.C.

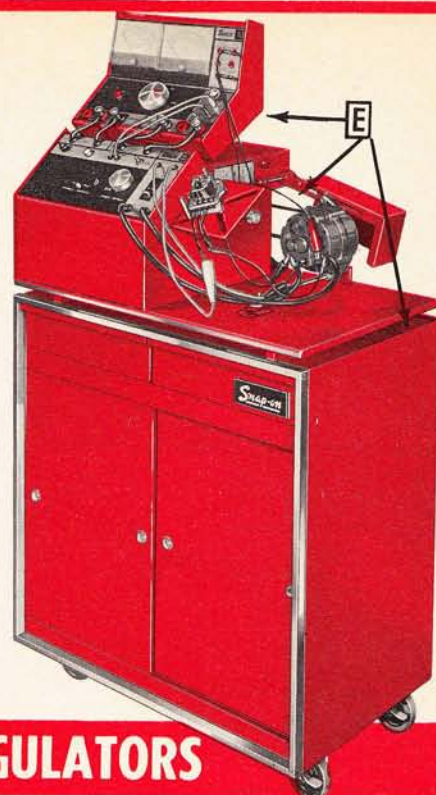
Field Rheostat: 100 Ohms, with open position for system cycling.



Snap-on

TEST BENCH

**TWO-HORSEPOWER
MOTOR DRIVES 6 OR
12 VOLT GENERATORS
OR ALTERNATORS UP
TO 80 AMPERES**



TESTS ALTERNATORS—GENERATORS—REGULATORS

IT IS VERSATILE — EFFICIENT — PORTABLE — EASY TO USE

This modern test bench is another SNAP-ON time-saving, money-making unit. With it you can test repaired or rebuilt alternators, generators, or regulators quickly, efficiently and economically by duplicating any on-vehicle condition. Note that the instrumentation of the MT-540C AVR Tester described on the page opposite, can be used as an integral part of the bench. This can really hold down equipment investment while the work capacity and profit potential of your shop rises sharply. If desired, the AVR tester can be removed in less than 30 seconds to perform the many on-vehicle tests shown to the left.

Powered by a two horsepower motor, the tester will drive 6 or 12 volt gen-

erators or alternators up to 80 amperes. Four speeds ranging from 1,310 to 5,200 r.p.m. for any of nine different pulley sizes encountered provide controlled accuracy for efficient testing. Specially designed universal mounts provide fast, easy installation or removal of test units while a reversible motor drive permits either clockwise or counterclockwise rotation.

The KRA-450A Roll Cab (illustrated) mounts the testbench at just the right working height, providing portability and ample storage for all auxiliary service equipment. Servicing generators, alternators, and regulators is a high profit business. Put yourself into this lucrative field with the complete SNAP-ON Test Bench.

OPTIONAL ACCESSORIES FOR THE AVR TESTER

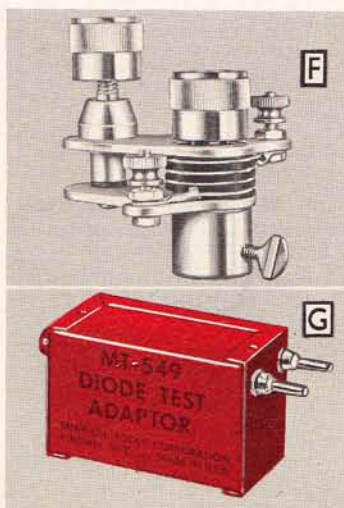
BATTERY POST ADAPTOR

(F) MT-358A Battery Post Adaptor. Required to connect a test ammeter into a sealed charging circuit. Speeds hook-ups and test procedures. Provides fast, safe and easy hook-ups of ammeter and voltmeter leads on any vehicle and prevents damaging alternator diodes should an ammeter lead be pulled loose during tests or the circuit be opened without an ammeter properly connected.

A $\frac{1}{4}$ ohm resistor built into the unit enables accurate voltage regulator tests as it simulates a fully charged battery. The adaptor threads onto the battery terminal and the battery cable is then attached to the adaptor. A thumb screw in the base post allows the adaptor to be used on smaller foreign batteries. Brazing rings in the male and female end sub-assemblies insure a more positive and mechanical bond.

The unit is approximately $3\frac{1}{8}$ " high, 4" long and $2\frac{3}{4}$ " wide at the terminals.

This unit is designed for use with SNAP-ON AVR Testers and MT-402C, MT-701 and MT-702 Alternator, Generator and Regulator test instruments. See pages 150 and 152.



TEST BENCH UNITS AVAILABLE

(A) MT-645A 2 H.P. Test Bench Power Unit, without instrumentation. The MT-540C AVR Tester shown on opposite page can be mounted to provide the instrumentation.

(B) MT-540C AVR Tester. Described on the opposite page.

(C) MT-4073 Test Bench Power and Instrument Set. This is a combination of the MT-645A Power Unit and the MT-540C AVR Tester which supplies the instrumentation.

(D) KRA-450A Roll-Cab. Mounts the MT-4073 Test Unit at just the right height for convenient working. The Roll-Cab is $36\frac{1}{2}$ " high, 32" long and $19\frac{1}{4}$ " wide. It has two drawers $3\frac{3}{4}$ " deep and large lower compartment. See full description on page 151.

(E) MT-4072 Complete Test Bench and Roll-Cab Set. Consists of the combination of the MT-645A Power Unit, MT-540C AVR Tester and KRA-450B Roll-Cab.

SPECIFICATIONS

Height: $61\frac{1}{8}$ " (on roll-cab as shown)

Width: $32\frac{1}{8}$ "

Depth: $19\frac{1}{4}$ " (front to back)

Power: 2 HP, 220 volt, single phase, 60 cycle, constant speed motor.

Capacity: 6, 12 volt systems

Speed Range: 1,310 to 5,200 r.p.m.

DIODE TEST ADAPTORS

These adaptors allow checking alternator diodes without disconnecting them from the stator windings. The adaptor plugs into jacks on the AVR Tester and voltmeter leads are connected to the adaptor and the diodes. A good diode will check high resistance or no current flow in one direction and show current flow in the other. A shorted diode shows the same flow in both directions.

(G) MT-549 Adaptor for MT-540C AVR Tester.

Snap-on PRECISION TUNE-UP INSTRUMENTS

DIAGNOSE TROUBLES EASILY, QUICKLY, POSITIVELY—PUT THE PROFIT TUNE IN TUNE-UP



INSTRUMENTS WITH PLUS FEATURES

Jewelled bearings provide needle accuracy... Extra long leads stretch across the widest fenders... Silverplated switch terminals give resistance-free performance... Anti-static dial coating prevents needle float... These self-contained meters use simple batteries or the current of the engine... Sturdy steel cases have red enamel finish, top panel is black bakelite... **Note:** MT-730 has a black bakelite case... Easy to read dials with clear figures and calibrations... Firm gripping alligator clips that won't slip off... Instruction booklets are easy to understand... Meter has carrying handle and rubber feet.

A ALTERNATOR-REGULATOR TESTER

MT-702 Alternator-Generator-Regulator Tester. Tests all 6 or 12-volt generating systems on cars and trucks equipped with alternators or D.C. generators. Ohmmeter for testing diodes and for continuity checks. It will show up resistance from one Ohm up to 5,000 Ohms.

Dual Range Voltmeter with a 20-volt scale in 2 volt increments for checking voltage regulator settings and a 2-volt scale in .02 volt increments for measuring voltage drops throughout the charging circuit wiring.

Dual Scale Ammeter with a scale range of 100 amperes in one ampere increments for checking maximum output of the alternator generator and a 10 ampere scale in .1 ampere increments for measuring field current. External ammeter shunt near the lead ends minimizes voltage drop. One battery operates the tester.

B TACH-DWELL METER

MT-715 Combination Tach Dwell Meter. Combines the jobs of a tachometer and a distributor tester. Checks engine speed and dwell readings with one simple hookup of extra-long 8-foot leads. Detects a variety of distributor mechanical faults. Can be used for determining point resistance and setting points at cranking speed.

High-low range tach scales (1-1000 r.p.m. and 0-5000 r.p.m.) allow more accurate low-speed indications. Can be used on 6, 12 or 24-volt systems on any 4, 6 or 8-cylinder engine.

Separate dwell scales in 2° increments for 6 and 8 cylinder engines. One battery operates the meter. Opens the door to such high-profit jobs as automatic transmission adjustments and carburetor work.

C EXHAUST GAS ANALYZER

MT-705 Exhaust Gas Analyzer. Provides an excellent way to check engine efficiency after tune-up. Specially designed analyzing cell measures air-fuel ratio to spot troubles such as improper carburetor adjustment, fouled plugs, air leaks, vapor locks, clogged muffler, stuck heat riser, inoperative accelerator pump, improper timing, etc.

Battery-operated, this unit is completely portable permitting accurate analysis under all operating conditions—in the shop or on the road. A timer shuts it off after eight minutes of operation—extends battery life.

Analyzing cell mounts on bumper close to tail pipe providing instantaneous response. This rear cell assembly is rugged, it will not "drown out" or "freeze-up" due to moisture. A 20-foot conductor cable leads to the indicating instrument.

MT-405-108 Jar Of Dessicant. The dessicant used in above gas analyzer should be replaced periodically to help maintain cell response accuracy.

D IGNITION ANALYZER

MT-730 Ignition Analyzer. A dual-scale ohmmeter and ammeter tests primary coil efficiency; secondary coil efficiency; coil heat; stalled motor coil current; capacitor efficiency; secondary coil resistance; capacitor leakage; coil polarity; ignition efficiency; plug misfiring; ballast resistor continuity; motor idle currents.

Scale increments. R X 1 scale reads 0 to 300,000 Ohms with mid-scale reading of 10,000 ohms. R X 10 scale reads 0 to 3 Meg Ohms (3,000,000 Ohms) with mid-scale reading of 100,000 ohms. **Amp scale** reads 0 to 1.5 Amps in .05 amp. increments and 0 to 6 amp. in .2 amp. increments. Neon indicator flashes to show exact spark plug gap setting for secondary efficiency readings.

Analyzer is furnished with 22½ volt Mallory type mercury battery, special distributor adaptor, an MT-16 timing light jack, two fibre insulators and a 3' jumper wire with clips. As a safety feature this meter has a black bakelite case.

E AUTOMOTIVE OHMMETER

MT-704 Ohmmeter. For measuring resistance of various automotive electrical components such as coils, resistance wiring, ballast resistors and diodes. When excessive resistance exists in these components or in other wiring, the ignition or charging system may operate improperly. This new ohmmeter can be used to measure existing resistance to spot trouble quickly and accurately. The unit can also be used for continuity tests and to locate open circuits in components and in wiring.

The dial has red calibration numbering at 0, 5, 10, 15, 25, 50, 100, 200, 300, 500 and infinity, with black sub-divisions for most of the scale. Three ranges are provided, the RX1 range provides direct reading in ohms; RX10 multiplies the dial reading by ten and RX100 multiplies the reading by 100. Lead clips have color coded boots so that polarity can be observed when testing diodes and transistors.

One 1.5 volt battery powers the unit and is easily replaced when necessary. Complete testing instructions are included.

F GENERATOR-REGULATOR TESTER

MT-701 Generator-Regulator Tester, has a 17 volt range for popular cars and trucks, and a 60 volt range for heavy duty ignition systems of more than 12 volts. The 60 ampere range handles any passenger car or truck in service today. No additional equipment is needed to test full generator output without damage to the tester. The built-in polarity switch makes fast, accurate readings possible.

No adjustments or changes in hook-ups are required... Simply flip the switch to obtain the correct reading. One voltage scale provides readings in both the 15 and 60 volt ranges. No computations or allowances are required, the meter reading is the complete answer. Tester is furnished with 6 foot leads. No batteries needed.



G VACUUM AND FUEL PUMP GAUGE

MT-725 Vacuum and Fuel Pressure Gauge. Instrument housed in handsome red plastic case with convenient carrying handle. Detects a wide line of engine troubles from leaky manifolds to weak valve springs.

Vacuum Scale. Shows up to 28 inches of mercury in one and five inch increments and metric calibrations up to 700 mm., Hg., in twenty and one-hundred mm., increments.

Fuel Pump Pressure Scale. Shows up to 10 p.s.i. in half and one p.s.i., increments, in metric it shows up to 700 g/cm² in 50 g/cm² increments.

Dial increments are plainly marked for fast and easy reading. Included with the gauge is a ten foot rubber tube and one each of the vacuum gauge adaptors listed on page 146.

H TUNE-UP INSTRUMENT SET

MT-7004 Tune-Up Instrument Set. Shown above, consists of three most needed meters, MT-702 Alternator-Generator Tester, MT-715 Tach-Dwell Meter and MT-730 Ignition Analyzer. Also included is the KRA-419 Meter Rack and the KRA-416C Roll Stand.

MT-7003 Set. Above set without Roll Stand.

KRA-419 Meter Rack. Holds any three of the meters shown on this page. Leads enter slots and are stored within the rack. A brushed aluminum cowl fits over the meter handles to hold the meters securely in position and fastens to the rack with two thumb screws.

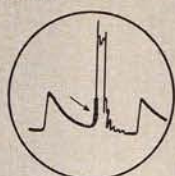
KRA-416C Roll Stand. Holds the KRA-419 Meter Rack at just the right height for working convenience. It has a heavy base with 24" leg span and four swivel casters. Low center of gravity affords excellent support and balance. It has a handy tray and lead hooks.

Snap-on ANAL-O-SCOPE SHOWS THE PROFIT PICTURE

THE PATTERN TELLS THE STORY



This is a normal pattern as it appears on the tube. Variations indicate troubles.



This pattern indicates that the contact points are not breaking cleanly.



This pattern variation shows there is resistance in the primary circuit.

Forty-four pattern variations shown in the instruction book pinpoint many specific engine malfunctions. Test procedures are fully explained.



MODEL MT-615D

TIME SAVED LOCATING TUNE-UP TROUBLES PUTS PROFIT IN YOUR POCKET

MT-615D SNAP-ON Deluxe Anal-O-Scope. Shows a pattern on a TV-type screen that by variations from normal, indicates precisely what the trouble is in the ignition system of any engine with battery or magneto operation. A perfectly normal pattern means a properly working ignition system. If trouble exists, the part of the picture that is distorted pinpoints the trouble spot. In addition, any part of the picture can be magnified for viewing in great detail.

The SNAP-ON Anal-O-Scope provides two basic patterns. One is a direct reading of the primary circuit, the other a direct reading of the secondary circuit. Both patterns are obtained with one simple hook-up. The scope can be switched from the primary pattern to the secondary pattern at will by simply turning a knob. This direct reading feature shows each circuit in great detail.

The Anal-O-Scope is designed and built to handle both standard, transistor or magneto ignition systems.

The patented ignition reserve test is just one of the exclusive features found on the Anal-O-Scope. This test puts a calibrated load on the ignition electronically to simulate an actual road test. This spots faults that would not show up on an ordinary scope and is excellent for proving out work after the tune-up has been completed.

The Anal-O-Scope will work either off the test vehicle's own 6, 12 or 24 volt

power supply or standard 115 A.C. This means complete portability and eliminates the possibility of interference from other electrical equipment when using 115 volt shop power.

Detailed instruction manuals plus simplified testing and hook-up procedures make the Anal-O-Scope easier than ever to use. A hook-up of five leads is all that is required to test both the primary and secondary systems. An exclusively designed viewing panel with two illustrations showing ideal primary and secondary patterns also makes testing easier. Large, clearly marked knobs make pattern adjustments fast and easy. Instrument measures 12½" high, 16" wide, 19½" deep. The SNAP-ON ultra-modern Anal-O-Scope pinpoints trouble faster and often detects trouble either difficult or impossible to detect with other equipment. This means more jobs done in less time for greater profits — fewer comebacks — greater customer satisfaction.

TESTS WHICH CAN BE PERFORMED

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • Ignition Reserve Capacity • Ignition Timing • Coil Polarity • Spark Plug Action • Secondary Circuit Resistance • Secondary Circuit Leakage | <ul style="list-style-type: none"> • Condenser Resistance • Battery to Coil Resistance • Coil to Ground Resistance • Breaker Point Resistance • Point Closing Faults • Point Opening Faults | <ul style="list-style-type: none"> • Cam Angle Measurement • Primary Circuit Leakage • Point Bounce • Distributor Wear • Condenser Faults • Valve Action |
|---|---|--|

SECONDARY CIRCUIT ADAPTOR

MT-626 Adaptor. Lets you make accurate tests with your Anal-O-Scope through the secondary circuit. This is very necessary on transistor ignition systems as many have unknown circuitry or components. Also accurate secondary circuit information must be gained through the secondary circuit when high ratio coils are encountered. Included with Model MT-615D Anal-O-Scope shown above. Available as an optional unit for owners of previous Anal-O-Scope Model MT-615C.



EXCLUSIVE FEATURES

- 1. Easy-to-understand pattern** — shows complete firing cycle. Patented features provide complete primary and secondary circuit information. Pattern is more detailed and contains more information.
- 2. Patented Ignition Reserve Test** — electrically loads ignition system to determine if car has necessary power reserve for high speed and varied road conditions. Lets you do in the shop what others must do on the road.
- 3. Universal Power Supply** — operates on ordinary house current of 110-120 volts A.C. or directly off the car battery, 6, 12 or 24 volt. No power pack needed. Fully protected by fuses.
- 4. Simple Hook-up** — only three leads to hook up plus power connection.
- 5. Big Pattern** — can be amplified vertically or horizontally to show any part of a cylinder or all cylinders at one time.
- 6. Nothing Else to Buy** — a most important feature. There are no hidden "extras" as with other equipment. Everything you need is furnished as a complete package ready to go to work. For the complete set see the listing below and illustration in next column.
- 7. Completely Portable** — another plus feature, you can use it in the shop or out on the road since it works on battery systems with its built-in power pack.
- 8. Easy to Understand** — the ANAL-O-SCOPE presents a trace pattern on the "picture tube." Deviations from the normal pattern indicate exactly where and what is the nature of the trouble. All such possible deviations are diagrammed in the instruction book which explains use of the instrument.
- 9. Detachable Leads** — in case of damage to the leads it is not necessary to rewire inside the instrument. Individual leads are easily replaced in the four-prong jack.

ACCESSORIES INCLUDED

Accessories furnished include the connection lead harness, 8 flexible spark plug adaptor jacks, 1 insulated jumper wire, 1 high tension jumper cable, 1 power-type timing light, 1 timing light jack, 3 spark plug adaptors, 1 gapped distributor adaptor, 1 ignition fault finder, 1 insulating rubber glove, 2 extra 1-amp fuses, 2 extra 8-amp fuses, 1 kit bag, 1 operating manual.

MT-626 Secondary Circuit Adaptor at left and MT-624 Glare Shield below are also included with the MT-615D Anal-O-Scope.

GLARE SHIELD

MT-624 Glare Shield. Is included with the MT-615D Anal-O-Scope shown above. Also available as optional unit for owners of previous model MT-615C. Dull black inside and out... hooks into holes designed into the screen face bezel. Aids visibility.

Snap-on MATCHED METERS HELP SELL YOUR SERVICE



THESE MODERN METERS HELP DELIVER THE MAXIMUM PERFORMANCE CUSTOMERS EXPECT

On today's high powered automotive engines it is not enough to be close on critical tune-up adjustments. The work must be exact to deliver the maximum performance customers expect and to prevent customer comebacks.

With SNAP-ON ultra modern, highly accurate tune-up instruments you can pinpoint trouble areas quickly—then make adjustments or parts replacement fast, accurately and with complete confidence.

A MT-402C ALTERNATOR TESTER

Test the performance of alternators, generators, regulators, and accessory circuits with this very versatile tester. The MT-402C contains a multi-range voltmeter, dual-range ammeter and a multi-range ohmmeter. A simple flick-of-the-switch selects the desired function and range. A dual purpose external ammeter shunt near the end of its extra long 10 ft. leads practically eliminates voltage loss for extreme accuracy. A must for efficient tune-ups.

TESTS WHICH CAN BE PERFORMED

- Alternator Output
- Generator Output
- Alternator Field Current
- Diode Efficiency
- Electrical Continuity
- Electrical Short Circuit
- Ignition By Pass Circuit
- Ballast Resistor Check
- Cranking Voltage
- Resistance Tests
- Voltage and Amp Readings

SPECIFICATIONS

Case dimensions: open 7 $\frac{5}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep.
closed 7 $\frac{5}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Voltmeter ranges: 0-2 (.02 V. divisions), 0-20 (.2 V. divisions), 0-40 (.5 V. divisions).

Ammeter ranges: minus 1-10 (.1 amp. divisions), minus 10-100 (1 amp. divisions).

Ohmmeter ranges: 0-infinity.

NOTE: We advise the use of the MT-358A Battery Post Adaptor (page 149) with the above tester . . . it simplifies hook-up procedures.

B MT-404C OHMMETER

Designed specifically for the specialized needs of automotive service, the MT-404C Ohmmeter has the capacity to quickly and easily check various electrical resistances found on passenger cars and trucks. Automotive electrical components all have normal resistances which should agree with manufacturers' specifications. Excessive resistance often causes the ignition or charging system to operate improperly.

TESTS WHICH CAN BE PERFORMED

- Resistance in primary circuit
- Resistance in coils
- Diode efficiency
- Resistance in secondary circuit
- Electrical continuity
- Check transistors
- Check ballast resistors
- Resistance in accessory circuits

SPECIFICATIONS

Case dimensions: open 7 $\frac{5}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep.
closed 7 $\frac{5}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Power requirements: One "D" size flashlight battery.

Scale divisions: 0-500—infinity ohms (divisions as low as 1 ohm).
0-5000—infinity ohms (divisions as low as 10 ohms).
0-50,000—infinity ohms (divisions as low as 100 ohms).
0-100 diode test (1 division).



C MT-440C ADVANCE METER

The operational construction and circuitry of each unit has been proved dependable under extensive testing and is designed to do a number of tune-up jobs quickly and efficiently in the shop or on the road.

All units have matching appearance enabling you to start with the minimum and build as extensive a center as you wish. Yet each is completely self-contained. Detailed instructions explain hook-up and test procedures.

TESTS WHICH CAN BE PERFORMED

- Mechanical Advance
- Vacuum Advance
- Engine R.P.M.

SPECIFICATIONS

Case dimensions: open 7 $\frac{5}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep.
closed 7 $\frac{5}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Distributor Advance Scale: 0-50° (1° divisions).

Engine Advance Scale: 0-100° (2° divisions).

Distributor R.P.M. Scale: 0-2500 (50 R.P.M. divisions).

Engine R.P.M. Scale: 0-5000 (100 R.P.M. divisions).

MT-440C-350 Reflective Tape. White, pressure sensitive adhesive tape used with MT-440C Advance Meter on the vibration damper (pulley) to initiate turn-off signal. Roll is $\frac{1}{2}$ " x 36".

COIL AND CONDENSER TESTER

MT-335 Coil & Condenser

Tester. Operates off the 6, 12 or 24 volt system—needs no outside power. Tests condensers and magnetos on the engine. Tests coils on the car without the engine running, without using the distributor and without disassembly. Tests efficiency of coil by means of calibrated spark gap read on three color-coded zones which indicate over-all efficiency of the coil.

Neon indicating light warns when electrodes are "hot" even though the gap may be too wide for the spark to jump. Three-position switch permits condenser, coil or heat tests. A 6 ampere fuse protects the electrical system if leads are connected wrong. Black bakelite case is 6 $\frac{1}{4}$ " x 3 $\frac{3}{4}$ " x 2". Connecting leads are 3 $\frac{1}{2}$ " long with boot covered clips. High tension lead is insulated for 20,000 volts. Complete instructions are included.



OWN YOUR OWN PROFIT BUILDING TUNE-UP CENTER



BUILD A COMPLETE TUNE-UP CENTER ON A MATCHED UNIT PLAN

General features of the instruments on this and the opposite page.

- Large open face, 6" meters with long, color-zoned scales for easier and accurate readings.
- Folding case enables setting the meter at any angle for easy viewing and provides complete protection for the meter when not in use.
- Nickel-chrome plated steel handles form a bracket on the ends to provide winding storage for the 9-foot long leads.
- Leads exit from the back of the case to present a clean uncluttered appearance.
- Red enamel case contrasts nicely with the brushed aluminum cover plates, and large circular control knobs add to the modern appearance.
- Rubber feet help prevent slipping or marring of any surface on which the unit is placed.

D MT-405D COMBUSTION ANALYZER

A completely portable unit for in shop or on-the-road tests of carburetion and fuel systems of gasoline engines. Specially designed analyzing cells measure air-fuel ratio while color-coded scales on the large 6" meter face indicate whether the mixture is rich, normal or lean. Analyzing cells mount on rear bumper next to tailpipe giving instantaneous reading of mixture changes. Rear cell assembly and meter are connected with 20 ft. conductor cable. A foolproof way of demonstrating carburetion efficiency to a customer after tune-up.

TESTS WHICH CAN BE PERFORMED

- Idle Mixture
- Cruising Mixture
- Intake Manifold Air Leak
- Accelerator Pump Action
- Exhaust System Back Pressure

SPECIFICATIONS

Case dimensions: open 7 $\frac{1}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep; closed 7 $\frac{1}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Relative efficiency scale: 65%-93%.

Power requirements: four "D" size flashlight batteries.

MT-405-108 Jar of Dessicant. The dessicant used in the MT-405D Analyzer should be replaced periodically.

E MT-425D VACUUM GAUGE

A highly accurate, compact vacuum and fuel pressure gauge with which you will be able to detect a wide variety of troubles in both domestic and foreign made engines. Top portion of the case contains the gauge with vacuum measured on the top scale and fuel pump pressure measured on the lower scale. The lower portion of the case is a 7 $\frac{1}{2}$ " x 5 $\frac{1}{2}$ " x 1 $\frac{3}{4}$ " storage area for gauge accessories. Included are a 10 ft. rubber hose, and thirteen vacuum gauge adaptors, shown and listed on page 146.

TESTS WHICH CAN BE PERFORMED

- Valve leakage
- Valve timing
- Intake system leakage
- Vacuum booster pump
- Fuel pump vacuum
- Exhaust back pressure
- Sticky valves
- Broken valve springs
- Fuel pump pressure
- Vacuum operated accessories

SPECIFICATIONS

Case dimensions: open 7 $\frac{1}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep. closed 7 $\frac{1}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Vacuum Gauge Capacity: 0-28 inches mercury (1 inch divisions).

0-700 millimeters mercury (20 mm. and 100 mm. divisions).

Fuel Pressure Gauge Capacity: 0-10 lbs. per sq. inch ($\frac{1}{2}$ lb. divisions).

0-700 grams per sq. centimeter (50 gram cent. divisions).

F MT-416C TACH-DWELL METER

For Testing Off The Primary Circuit

A single control unit that takes care of both the engine speed and the "Dwell" readings with one simple hook-up of the leads. To read engine rpm's the control is turned to the number of cylinders in the engine on either the 1,000 rpm or 5,000 rpm scale. To read "Dwell", turn the control to the "Dwell" position and read on the 6 or 8 cylinder scale, according to the number of cylinders. Solid state circuitry is employed to make this meter as accurate and trouble free as possible. Since it operates on current supplied by the ignition system under test, additional batteries that could cause inaccurate readings are not needed. The meter has high input impedance and will not load the circuit connected to it or cause any interference on Anal-O-Scope readings. It can be used on 6 or 12 volt, negative and positive systems and on most transistor ignition systems.

TESTS WHICH CAN BE PERFORMED

- Engine R.P.M. checks
- Cylinder balance
- Breaker point resistance
- Transmission shift points
- Cam angle measurement

SPECIFICATIONS

Case dimensions: open 7 $\frac{1}{8}$ " wide, 13 $\frac{1}{4}$ " high, 8 $\frac{1}{4}$ " deep; closed 7 $\frac{1}{8}$ " wide, 9 $\frac{1}{4}$ " high, 5" deep.

Dwell scales: 6 cylinder (2 degree divisions); 8 cylinder (1 degree divisions).

Tach scales: 0-1,000 (20 R.P.M. divisions); 0-5,000 (100 R.P.M. divisions).

Lead length: 9 feet.

G TEST INSTRUMENT ROLL STAND

KRA-416C Roll Stand. Designed to hold the model MT-540C AVR Tester shown on page 148 or by adding the KRA-449 Meter Mounting Tray, it will hold two of the meters above and opposite. (Meter Tray is not included.) The instruments are held at a convenient working angle and height. The stand has a useful tray and lead hooks. It has a heavy base of 24" leg span and 4 swivel casters. The low center of gravity gives excellent support and balance.

H METER MOUNTING TRAY

KRA-449 Meter Mounting Tray. Clamps to the above stand and holds two meters.



A



B

Snap-on

DELUXE TUNE-UP CENTERS

THE FINEST IN AUTOMOTIVE TUNE-UP EQUIPMENT

Step up to the ultimate in a complete automotive tune-up center. Engineered in the SNAP-ON tradition, these tune-up centers enable you to diagnose potential trouble areas in all makes of cars, trucks, buses . . . any vehicle powered by a gasoline or LP engine.

Without a doubt, this is the smartest, most modern tune-up equipment on the market. Its bold styling and red and black finish with stainless steel trim will impress your customers and remain "modern" for many years to come.

Each Tune-up Center is composed of the independent, self-contained units described on previous pages, each removable for use inside or outside the shop. The "heart" of the above Tune-up Centers is the versatile MT-615D Anal-O-Scope. It is the only scope on the market with the patented ignition reserve test. It provides a direct reading of both primary and secondary circuits, operates off the vehicle's battery or standard AC 115 volt power . . . just a few of its many features.

Units are mounted on a Console consisting of an illuminated cowl, meter trays, mounting drawer section and Roll-Cab. The heavy duty Roll-Cab provides ample room for wrenches, hand tools, and other equipment. The mounting section features drawers for leads, clips, and accessories. Rubber-lined slots in front allow the leads to protrude from closed drawers.

A MT-4063E MASTER CENTER

This complete Tune-up Center consists of five instruments. The MT-615D Anal-O-Scope, MT-402C Alternator-Generator-Regulator Tester, MT-405D Combustion Analyzer, MT-416C Tach Dwell Meter and MT-440C Advance Meter. All are fully described on previous pages.

All units are mounted on a 48" Master console consisting of the KRA-455A Roll-Cab, KRA-456 Mounting Drawer Section, KRA-458A Illuminated Cowl-ing and two KRA-449 Meter Mounting Trays. The large heavy duty Roll-Cab provides plenty of storage space for tools and accessories.

B MT-4064B UTILITY CENTER

This highly impressive tune-up center is most versatile. It retains many features of the Master Center and consists of the MT-615D Anal-O-Scope, MT-402C Alternator-Generator-Regulator Tester and MT-416C Tach Dwell Meter mounted on a 32" console.

The console includes the KRA-450A Roll-Cab, KRA-451 Mounting Drawer Section, KRA-453A Illuminated Cowl-ing and one KRA-449 Meter Mounting Tray. The complete specifications for the Roll-Cabs and Drawer Sections are given on the next page. Some of the possible uses are listed below.

SOME OF THE TESTS THAT CAN BE PERFORMED WITH THE TUNE-UP CENTERS SHOWN ABOVE

WITH TUNE-UP CENTER	A	B	WITH TUNE-UP CENTER	A	B
● Ignition Reserve Capacity	✓	✓	● Cylinder Balance	✓	✓
● Ignition Timing	✓	✓	● Alternator Output	✓	✓
● Coil Polarity	✓	✓	● Generator Output	✓	✓
● Spark Plug Action	✓	✓	● Alternator Field Current	✓	✓
● Secondary Circuit Resistance	✓	✓	● Diode Efficiency	✓	✓
● Secondary Circuit Leakage	✓	✓	● Electrical Continuity	✓	✓
● Condenser Resistance	✓	✓	● Electrical Short Circuit	✓	✓
● Battery To Coil Resistance	✓	✓	● Ignition By-Pass Circuit	✓	✓
● Coil To Ground Resistance	✓	✓	● Ballast Resistor Check	✓	✓
● Point Closing Faults	✓	✓	● Cranking Voltage	✓	✓
● Point Opening Faults	✓	✓	● Resistance Tests	✓	✓
● Cam Angle Measurement	✓	✓	● Voltage and Amp. Readings	✓	✓
● Primary Circuit Leakage	✓	✓	● Idle Mixture	✓	✓
● Point Bounce	✓	✓	● Cruising Mixture	✓	✓
● Distributor Wear	✓	✓	● Intake Manifold Air Leak	✓	✓
● Condenser Faults	✓	✓	● Accelerator Pump Action	✓	✓
● Valve Action	✓	✓	● Exhaust System Back Pressure	✓	✓
● R.P.M. Checks	✓	✓	● Mechanical Advance	✓	✓
● Breaker Point Resistance	✓	✓	● Vacuum Advance	✓	✓
● Valve Timing	✓	✓	● Engine R.P.M.	✓	✓



THE NEW LOOK IN MODERN SHOP EQUIPMENT

© MT-4065B BASIC TUNE-UP CENTER

Another popular SNAP-ON Test Center which performs many tune-up services. It consists of the MT-402C Alternator Generator-Regulator Tester, MT-405D Combustion Analyzer; MT-416C Tach-Dwell Meter and MT-440C Advance Meter. These units are mounted on the same 32" console combination as the MT-4064A on the preceding page and includes the KRA-450B Roll-Cab, KRA-451 Mounting Drawer Section, KRA-453A Illuminated Cowling and two KRA-449 Meter Mounting Trays. If you decide to start with this Basic Center and add an MT-615D Anal-O-Scope later it can be mounted in place of two of the above meters which are easily stored in the Roll-Cab when not in use.

TESTS WHICH CAN BE PERFORMED INCLUDE:

- R.P.M. Checks
- Cylinder Balance
- Breaker Point Resistance
- Transmission Shift Points
- Alternator Output
- Generator Output
- Alternator Field Current
- Diode Efficiency
- Electrical Continuity
- Electrical Short Circuit
- Ignition By-pass Circuit
- Valve Timing
- Ballast Resistor Check
- Cranking Voltage
- Resistance Tests
- Voltage and Amp Readings
- Idle Mixture
- Cruising Mixture
- Intake Manifold Air Leak
- Accelerator Pump Action
- Exhaust System Back Pressure
- Mechanical Advance
- Vacuum Advance
- Engine R.P.M.

ROLL-CABS AND MOUNTING DRAWER SECTIONS

Roll-Cabs are of heavy gauge steel with reinforced tops, bottoms and corners. Drawers ride on heavy-duty runners. One tumbler lock secures drawers and sliding doors. The KRA-455B Roll-Cab features a special drawer for 8½" x 11" specification cards and manuals. Both Roll-Cabs have a durable red, baked-on enamel finish with stainless steel trim. Four large swivel casters provide easy mobility.

Mounting sections have space for leads, clips, etc. Each drawer is sectioned and fronts have rubber lined lead slots. Attractive "wrought iron" black finish with stainless steel trim. Sections bolt securely to the Roll-Cab.

SPECIFICATIONS

- ① **KRA-456 Section:** 48" wide x 7¼" high x 19½".
Drawer Size: 14½" x 15½" x 4¾".
- ② **KRA-455A Roll-Cab:** 48" wide x 36½" high x 19½".
Drawer Size: 22¼" x 17½" x 3¾".
Compartment: 46½" x 27" x 16¾".
- ③ **KRA-451 Section:** 32" wide x 7¼" x 19½".
Drawer Size: 14½" x 15½" x 4¾".
- ④ **KRA-450A Roll-Cab:** 32" wide x 36½" high x 19½".
Drawer Size: 14½" x 17½" x 3¾".
Compartment: 30¾" x 27" x 17".

COVER FOR MT-4065E MASTER TUNE-UP CENTER

MTC-10 Cover. Made of .015" expanded clear vinyl plastic on a knit backing. It has two heavy duty Talon zippers. A heavy black binding prevents possible tearing and adds to service life. The cover is 48" long, 20" wide and 15" high and fits over the instruments.



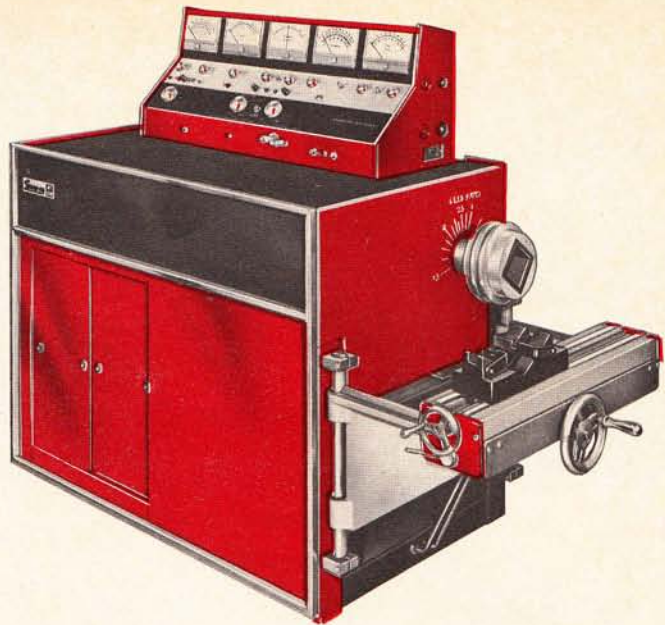
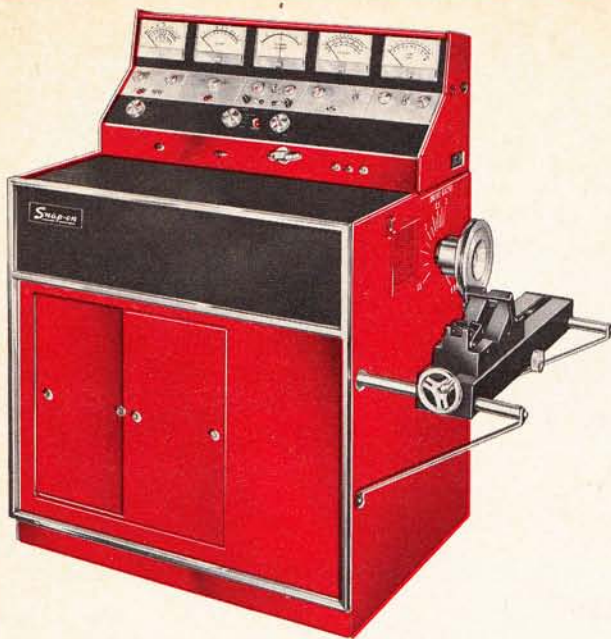
PLAY THAT *Sweet Profit Music* WITH THIS VALUE-PACKED TUNE-UP CENTER

MT-7005 EFFICIENCY TUNE-UP CENTER

Designed to give you the maximum amount of diagnostic equipment for checking engine electrical and ignition systems at a remarkably low investment. It consists of the same MT-615D Anal-O-Scope used in our Deluxe Tune-up Centers, MT-702 Alternator-Generator-Regulator Tester, MT-705 Exhaust Gas Analyzer and MT-715 Tach-Dwell Meter. These instruments are described in detail on pages 150 and 151. The Center also includes the KRA-419 Meter Rack, KRA-453A Illuminated Cowling, KRA-451 Mounting Drawer Section and KRA-450A 32" wide Roll-Cab. In the competitive auto service field the shop without adequate test equipment simply cannot compete... with this SNAP-ON Tune-Up Center you pinpoint problems quickly.

TESTS WHICH CAN BE PERFORMED INCLUDE:

- Ignition Reserve Capacity
- Ignition Timing
- Coil Polarity
- Spark Plug Action
- Secondary Circuit Resistance
- Secondary Circuit Leakage
- Point Opening and Closing Faults
- Cam Angle Measurement
- Primary Circuit Leakage
- Point Bounce
- Distributor Wear
- Condenser Faults
- Valve Action — Valve Timing
- R.P.M. Checks
- Cylinder Balance
- Alternator or Generator Output
- Alternator Field Current
- Diode Efficiency
- Electrical Continuity or Short Circuit
- Ignition By-Pass Circuit
- Ballast Resistor Check
- Cranking Voltage
- Resistance Tests
- Voltage and Ampere Readings
- Idle and Cruising Mixtures
- Intake and Manifold Air Leak
- Accelerator Pump Action
- Exhaust System Back Pressure



HEAVY DUTY GENERATOR TEST BENCHES

(A) MT-1505B 5 H.P. MODEL
180 AMP CAP., 6-12-24 VOLTS

This five-horsepower generator test bench can be used for testing all alternators and DC generators up to 180 amps capacity at 14 volts. It will handle all 6, 12, or 24 volt systems. Ammeter capacity is 240 amps; load capacity 200 amps. Main drive motor is Standard Nema 5 H.P. constant duty, 184 T frame, class B insulation, 220/440 volt AC 60 cycle 3 phase. Has step-less, finger-tip speed control, two field circuits, a jack for optional 1200 amp shunt, plus the features listed below.

DIMENSIONS

Length is 55", width is 30", height is 54". The gross shipping weight with crate is 900 pounds.

(B) MT-1510 10 H.P. MODEL

340 AMP CAP., 6-12-24-30-32 VOLTS

Will test all alternators and DC generators up to 340 amps capacity at 14 volts. Handles all 6, 12, 24, 30 or 32 volt systems. Ammeter capacity is 500 amps; load capacity 350 amps. Main drive motor is Standard Nema, 10 H.P., constant duty, 256T frame, class B insulation, 220/440 volt AC 60 cycle 3 phase. Has step-less, finger-tip speed control, two field circuits, a jack for optional 1200 amp shunt, a direct drive generator adaptor, plus the features listed below.

DIMENSIONS

Length is 72", width is 32½", height is 54". The gross shipping weight with crate is 1,500 lbs.

FEATURES THAT APPLY TO BOTH MODELS

Tests all regulators, heavy duty and transistor.

Field current control has separate circuits for high field and low field current, fused to prevent damage to generators or alternators. Field ammeter scale eliminates polarity problems.

Load controls permit one amp adjustments by a variable load of 50 amps and additional loads of 50 amps each. The load bank is fan cooled. Generator output can be matched to prevent over-charging batteries.

The ohmmeter has scale readings as small as one ohm. It permits testing diodes without removing them from stator windings.

The AC voltmeter has a range up to 60 volts.

The DC voltmeter reads from 0 to 20 volts and 0 to 60 volts. A polarity reversing switch is provided. Readings from 6 to 16 volts are in divisions of .1 volt.

The dual range ammeter has a capacity of -10 to +120 amps and -20 to +240 amps on the MT-1505B Test Bench. On the MT-1510 Test Bench it has a capacity of -10 to +100 amps and -50 to +500 amps. A scale of 1200 amps is included on both test benches for use with optional MT-541C shunt.

The tachometer operates on scales of 5,000 and 10,000 rpm. A scale of 500 rpm, for use with an optional magneto drive fixture, can be used with the control switch on "5,000." A generator rotation switch and drive ratio control are used in conjunction with the tachometer.

Large 6" meters have D'Arsonval jeweled movements and are guaranteed to be accurate within 2%.

Green service switch light indicates when electric power is on. Two limit lights used with the speed control switch aid in staying within the required speed range.

Battery-voltage switch handles only low solenoid current. Magnetic solenoids do actual switching.

Safety motor switch is designed to prevent reversing the motor while running.

An isolation transformer powers the accessories.

Welded steel construction throughout. Instrument console is vibration-proofed to eliminate pointer deflection. Rubber covered working area and ample storage space.

Speed Control Motor is continuous duty, ¼ H.P., 110 volt, 60 cycle, gear reduction type.

Variable Speed Drive contains heavy duty spring loaded drive sheaves. Positive stops and warning lights for high and low speed limits.

Output Drive will drive belt-driven generators and alternators to speeds in excess of 8000 rpm.

Standard accessories for MT-1505B pulley drive belts, regulator heater, test jumpers and locking connectors, voltage regulator mounting plate, universal chain clamp, pivot mount for alternators, instruction and specification manuals.

Standard accessories for MT-1510 includes all of the above, set of 300 amp charging circuit leads, and a direct-drive adaptor set for gear driven generators.

ILLUSTRATIONS AT RIGHT

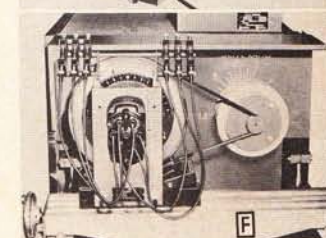
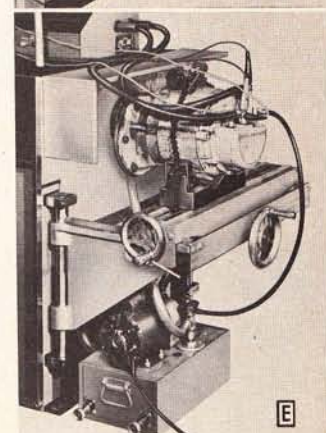
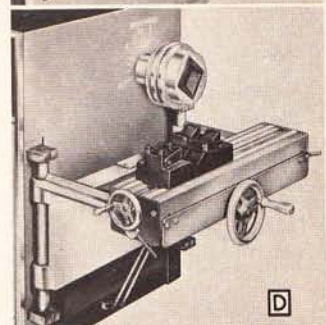
- (C) MT-1505B Showing the mounting carriage
- (D) MT-1510 Showing the mounting carriage
- (E) Testing 300 Amp oil cooled alternator
- (F) Testing magneto on 10 H.P. Bench

OPTIONAL ACCESSORIES

(E) MT-1508A OIL COOLER. For use with MT-1505B 10 H.P. Test Bench. Permits checking 220 amp and 300 amp oil cooled alternators used on large busses at full output and normal operating temperature. Full output test is necessary to check oil seals, stator and field windings and bearings.

(F) MT-1501A MAGNETO ADAPTOR. For use on the 5 H.P. or 10 H.P. Test Benches. Base or flange mounted magnetos, such as used on tractors, industrial engines and small power plants, can be tested. The adaptor mounts on the vise block and a special drive pulley gives a 10 to 1 step-down ratio.

MT-541C 1,200 AMP SHUNT. (see page 148). Used with all SNAP-ON Generator Test Benches for readings taken in series with starters used on diesels, busses and trucks, etc.



CONVERSION CHART SHOWING MILLIMETER SIZES, FRACTIONAL AND DECIMAL INCH SIZES AND NUMBER DRILL SIZES

Milli-Meter	Dec. Equiv.	Frac-tional	Num-ber	Milli-Meter	Dec. Equiv.	Frac-tional	Num-ber	Milli-Meter	Dec. Equiv.	Frac-tional	Num-ber	Milli-Meter	Dec. Equiv.	Frac-tional	Num-ber	Milli-Meter	Dec. Equiv.	Frac-tional
.1	.0039			1.75	.0689			4.0	.1570		22	6.8	.2677			10.72	.4219	27/64
.15	.0059			....	.0700		50	4.0	.1575			6.9	.2716			11.0	.4330	
.2	.0079			1.8	.0709			....	.1590		21	....	.2720		I	11.11	.4375	7/16
.25	.0098			1.85	.0728			....	.1610		20	7.0	.2756			11.5	.4528	
.3	.0118			....	.0730		49	4.1	.1614			....	.2770		J	11.51	.4531	29/64
....	.0135		80	1.9	.0748			4.2	.1654			7.1	.2795			11.91	.4687	15/32
.35	.0138			....	.0760		48	....	.1660		19	....	.2811		K	12.0	.4724	
....	.0145		79	1.95	.0767			4.25	.1673			7.14	.2812	9/32	....	12.30	.4843	31/64
.39	.0156	1/64	...	1.98	.0781	5/64	...	4.3	.1693			7.2	.2835			12.5	.4921	
.4	.0157			....	.0785		47	....	.1695		18	7.25	.2854			12.7	.5000	1/2
....	.0160		78	2.0	.0787			4.37	.1719	11/64		7.3	.2874			13.0	.5118	
.45	.0177			2.05	.0807			....	.1730		17	....	.2900		L	13.10	.5156	33/64
....	.0180		77	....	.0810		46	4.4	.1732			7.4	.2913			13.49	.5312	17/32
.5	.0197			....	.0820		45	....	.1770		16	....	.2950		M	13.5	.5315	
....	.0200		76	2.1	.0827			4.5	.1771			7.5	.2953			13.89	.5469	35/64
....	.0210		75	2.15	.0846			....	.1800		15	7.54	.2968	19/64	...	14.0	.5512	
.55	.0217			....	.0860		44	4.6	.1811			7.6	.2992			14.29	.5625	9/16
....	.0225		74	2.2	.0866			....	.1820		14	....	.3020		N	14.5	.5709	
.6	.0236			2.25	.0885			4.7	.1850		13	7.7	.3031			14.68	.5781	37/64
....	.0240		73	....	.0890		43	4.75	.1870			7.75	.3051			15.0	.5906	
....	.0250		72	2.3	.0905			4.76	.1875	3/16	...	7.8	.3071			15.08	.5937	19/32
.65	.0256			2.35	.0925			4.8	.1890		12	7.9	.3110			15.48	.6094	39/64
....	.0260		71	....	.0935		42	....	.1910		11	7.94	.3125	5/16	...	15.5	.6102	
....	.0280		70	2.38	.0937	3/32	...	4.9	.1929			8.0	.3150			15.88	.6250	5/8
.7	.0276			2.4	.0945			....	.1935		10	....	.3160		O	16.0	.6299	
....	.0292		69	....	.0960		41	....	.1960		9	8.1	.3189			16.27	.6406	41/64
.75	.0295			2.45	.0964			5.0	.1968			8.2	.3228			16.5	.6496	
....	.0310		68	....	.0980		40	....	.1990		8	....	.3230		P	16.67	.6562	21/32
.79	.0312	1/32	...	2.5	.0984			5.1	.2008			8.25	.3248			17.0	.6693	
.8	.0315			....	.0995		39	....	.2010		7	8.3	.3268			17.06	.6719	43/64
....	.0320		67	....	.1015		38	5.16	.2031	13/64	...	8.33	.3281	21/64	...	17.46	.6875	11/16
....	.0330		66	2.6	.1024			....	.2040		6	8.4	.3307			17.5	.6890	
.85	.0335			....	.1040		37	5.2	.2047			....	.3320		Q	17.86	.7031	45/64
....	.0350		65	2.7	.1063			....	.2055		5	8.5	.3346			18.0	.7087	
.9	.0354			....	.1065		36	5.25	.2067			8.6	.3386			18.26	.7187	23/32
....	.0360		64	2.75	.1082			5.3	.2086			....	.3390		R	18.5	.7283	
....	.0370		63	2.78	.1094	7/64	...	....	.2090		4	8.7	.3425	11/32	...	18.65	.7344	47/64
.95	.0374			....	.1100		35	5.4	.2126			8.73	.3437			19.0	.7480	
....	.0380		62	2.8	.1102			....	.2130		3	8.75	.3445			19.05	.7500	3/4
....	.0390		61	....	.1110		34	5.5	.2165	7/32	...	8.8	.3465		S	19.45	.7656	49/64
1.0	.0394			....	.1130		33	5.56	.2187			....	.3480			19.5	.7677	
....	.0400		60	2.9	.1141			5.6	.2205			8.9	.3504			19.84	.7812	25/32
....	.0410		59	....	.1160		32	....	.2210		2	9.0	.3543			20.0	.7874	
1.05	.0413			3.0	.1181			5.7	.2244			....	.3580		T	20.24	.7969	51/64
....	.0420		58	....	.1200		31	5.75	.2263			9.1	.3583			20.5	.8071	
....	.0430		57	3.1	.1220			....	.2280		1	9.13	.3594	23/64	...	20.64	.8125	13/16
1.1	.0433			3.18	.1250	1/8	...	5.8	.2283			9.2	.3622			21.0	.8268	
1.15	.0452			3.2	.1260			5.9	.2323			9.25	.3641			21.03	.8281	53/64
....	.0465		56	3.25	.1279			....	.2340		A	9.3	.3661			21.43	.8437	27/32
1.19	.0469	3/64	...	....	.1285		30	5.95	.2344	15/64	...	....	.3680		U	21.5	.8465	
1.2	.0472			3.3	.1299			6.0	.2362			9.4	.3701			21.83	.8594	55/64
1.25	.0492			3.4	.1338			....	.2380		B	9.5	.3740			22.0	.8661	
1.3	.0512			....	.1360		29	6.1	.2401			9.53	.3750	3/8	...	22.23	.8750	7/8
....	.0520		55	3.5	.1378			....	.2420		C	....	.3770		V	22.5	.8858	
1.35	.0531			....	.1405		28	6.2	.2441			9.6	.3780			22.62	.8906	57/64
....	.0550		54	3.57	.1406	9/64	...	6.25	.2460		D	9.7	.3819			23.0	.9055	
1.4	.0551			3.6	.1417			6.3	.2480			9.75	.3838			23.02	.9062	29/32
1.45	.0570			....	.1440		27	6.35	.2500	1/4	E	9.8	.3858			23.42	.9219	59/64
1.5	.0591			3.7	.1457			6.4	.2520			....	.3860			23.5	.9252	
....	.0595		53	....	.1470		26	6.5	.2559			9.9	.3898		W	23.81	.9375	15/16
1.55	.0610			3.75	.1476			....	.2570		F	9.92	.3906	25/64	...	24.0	.9449	
1.59	.0625	1/16	...	....	.1495		25	6.6	.2598			10.0	.3937			24.21	.9531	61/64
1.6	.0629			3.8	.1496			....	.2610		G	....	.3970		X	24.5	.9646	
....	.0635		52	....	.1520		24	6.7	.2638			....	.4040		Y	24.61	.9687	31/32
1.65	.0649			3.9	.1535			6.75	.2657	17/64	...	10.32	.4062	13/32	...	25.0	.9843	
1.7	.0669			....	.1540		23	6.75	.2657			....	.4130		Z	25.03	.9844	63/64
....	.0670		51	3.97	.1562	5/32	...	....	.2660		H	10.5	.4134			25.4	1.0000	1

5168-GS-B Mechanics Service Set



KRA-58B TOOL CHEST

120-TMP
219-FSP
206-FU
211-SFS-Y
S-9704B-FU
F-711A
316-SW-Y
S-710
SN-18A
SX-5
SX-10
XS-607

1/4" DRIVE SET
3/8" DRIVE SET
3/8" DR. FLEXOCKET SET
3/8" DR. DEEP SOCKETS
SPARK PLUG FLEXOCKET
3/8" DR. RATCHET
1/2" DRIVE SET
1/2" DR. RATCHET
1/2" DR. NUT SPINNER
1/2" DR. EXTENSION 5"
1/2" DR. EXTENSION 10"
BOXOCKET SET

OEX-711
RXH-1214S
RXH-1618
R-1618
VP-7WR
AW-1013-AK
2011B-ITK
FB-301
47
87
90A
BH-92

COMBINATION WR. SET
FLARE NUT WRENCH
FLARE NUT WRENCH
RATCHETING BOXOCKET
VISE GRIP PLIER
ALLEN WRENCH SET
TUNE-UP SET
WIRE FEELER GAUGE
PLIER
DIAGONAL CUTTER
PLIER
16 OZ. HAMMER

96
BP-212
CSA-12
HS-8
PPC-200-K
1650
SSDS-50
SSDP-50
SSM-5
CT-4B
AC-58B
CJ-92

NEEDLE NOSE PLIER
12 OZ. HAMMER
GASKET SCRAPER
HACK SAW FRAME
PUNCH & CHISEL SET
PRY BAR
SCREW DRIVER SET
PHILLIPS SC. DR. SET
SCREW STARTER
CIRCUIT TESTER
WIRE BRUSH
BATT. CABLE PULLER